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ABSTRACT

This course in Traffic Records will introduce the student to the basic concepts of an integrated State Traffic Records System. The course is built around the Design Manual for State Traffic Records Systems. The pertinent parts of the design manual have not been reproduced with this study guide but are referenced in the introductory pages for each of the training modules. The course consists of 12 modules, each self-contained but each building on the other. Modules 1 and 2 introduce the student to the basic concepts, the next eight modules provide the student with an opportunity to explore the various important aspects of State traffic records. In Module 11 the student is given an introduction to the techniques of evaluative research, and in Module 12 the material covered is reviewed. (Author/BP)

MAY 1974

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BASIC COURSE IN HIGHWAY TRAFFIC RECORDS

Student Guide

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U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
WASHINGTON, D.C.

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FOREWORD

TO THE STUDENT

This course in Traffic Records will introduce you to the basic concepts of an integrated State Traffic Records System. You will find that much of what you already know can be looked at differently and will take on new meaning, and your understanding of the traffic records data available in other departments will be expanded. You will also obtain a clearer picture of your own place in the total traffic records picture.

The course is built around the Design Manual for State Traffic Records Systems. You should familiarize yourself with the design manual so that you are able to discuss it in class. The pertinent parts of the design manual have not been reproduced with this study guide but are referenced in the introductory pages for each of the training modules.

This couse consists of 12 modules, each self-contained but each building upon the others. Modules 1 and 2 introduce you to the basic concepts, and then the next eight modules provide you an opportunity to explore the various important aspects of state traffic records. In Module 11 you are given an introduction to the techniques of evaluative research, so that in the future your ability to ask for and use data will be enhanced, and in Module 12 you are given an opportunity to review the material you have covered.

The nature of this course is such that much of its success depends upon you and what you bring to class. Study the next day's modules the night before class. Organize your own thoughts, and relate what you have learned to what you already know. Your contributions will not only help you but will make the learning experience richer and [redacted] meaningful for the rest of the class.

MODULE 1

TRAFFIC RECORDS IN PERSPECTIVE:

A KEY TO THE HIGHWAY SAFETY PROGRAM

GENERAL OBJECTIVES:

To acquire:

1. A knowledge of the content of the Highway Safety Program, and an understanding of the relation of each Program Subject Area to the overall purpose of the Program.

2. An appreciation of the importance of traffic records, and of the concept of an integrated traffic records system, to the success of the Highway Safety Program.

MODULE 1

TRAFFIC RECORDS IN PERSPECTIVE:

A KEY TO THE HIGHWAY SAFETY PROGRAM

CONTENT

1.1 Introduction
1.2 The Highway Safety Program
1.3 Traffic Records in Perspective
1.4 Questions and Answers

REFERENCE

Design Manual for State Traffic Records Systems, Vol. I

SUGGESTED STUDY APPROACH

1. Familiarize yourself with the contents of this Study Guide, and the contents of the Design Manual for State Traffic Records Systems.

2. At first opportunity (which may not come until you have completed Modules 1 and 2), read Section I of Vol. I of the Design Manual.

3. Read all Study Guide material (which follows) for Module 1.

PURPOSES OF THE HIGHWAY SAFETY PROGRAM

- The ultimate goal of the Highway Safety Program, as stated in the Highway Safety Act of 1966, is:

  "...to reduce traffic accidents and deaths, injuries, and property damage resulting therefrom..."

- A more specific purpose of the Federal Program, in seeking that ultimate goal, is the promotion in each State of a State Program that accords with uniform standards promulgated by DOT.

- These uniform standards are issued (again citing the Highway Safety Act of 1966):

  "...So as to improve driver performance... and to improve pedestrian performance..."

  and should include:

  "... provisions for an effective record system of accidents (including injuries and deaths resulting therefrom), accident investigations to determine the probable causes of accidents, injuries, and deaths, vehicle registration, operation, and inspection, highway design and maintenance (including lighting, markings, and surface treatment), traffic control, vehicle codes and laws, surveillance of traffic for detection and correction of high or potentially high accident locations, and emergency services..."

HIGHWAY SAFETY PROGRAM MANUAL

TABLE OF CONTENTS

Volume	
0	Planning and Administration
1	Periodic Motor Vehicle Inspection and Supplement 1 to Volume 1
2	Motor Vehicle Registration and Supplement 1 to Volume 2
3	Motorcycle Safety and Supplement 1 to Volume 3
4	Driver Education and Supplement 1 to Volume 4
5	Driver Licensing and Supplement 1 to Volume 5
6	Codes and Laws and Supplement 1 to Volume 6
7	Traffic Courts and Supplement 1 to Volume 7
8	Alcohol in Relation to Highway Safety
9	Identification and Surveillance of Accident Locations
10	Traffic Records and Supplement 1 to Volume 10
11	Emergency Medical Services and Supplement 1 to Volume 11
12	Highway Design, Construction and Maintenance
13	Traffic Engineering Services
14	Pedestrian Safety
15	Police Traffic Services and Supplement 1 to Volume 15
16	Debris Hazard Control and Cleanup
17	Pupil Transportation Safety
18	Accident Investigation and Reporting (Interim)

FUNCTIONS OF TRAFFIC RECORDS STAFF PERSONNEL

TRAFFIC RECORDS ANALYST

Development functions

- Assists in design of proposed ADP systems
- Improves, develops new techniques to prepare statistical measures of traffic crash problem to show magnitude, changes and trends, and to identify areas for further research
- Identifies, structures the traffic records and safety information requirements of a given agency
- Reviews, analyzes, evaluates, revises operating techniques, procedures, methods
- Performs detailed analysis of traffic records as required

Coordination functions

- Coordinates his own and work of other analysts in a central agency to assure compatibility of his requirements and methods with those of other functional areas of interest
- Works with analysts in other agencies to facilitate transfer, merger, utilization of data
- Coordinates traffic records function with other data processing activities of agency
- Coordinates with State-level analysts about System's compatibility with overall State system and about information exchange between State and local systems

Planning functions

- Provides direction to agencies through assistance in (1) establishing data requirements; (2) review and evaluation of operating procedures and ADP System optimization; recommendation of improved procedures to identify safety problem within functional area, and means to relieve problem
- Aids in determining personnel requirements of agency
- Aids in training/orientation of agency personnel in new procedures

Planning functions (cont'd)

- Provides assurance of timely reporting of traffic safety information to State agencies where needed
- Assists in preparation of budget and defense of budget to meet traffic records needs

TRAFFIC RECORDS COORDINATOR

Development functions

- Identifies the documents of the traffic records system
- Develops overall plan for system based on defined goals and available resources, an implementation schedule, and estimate of future requirements
- Investigates compatibility of system components, hardware, software, coding arrangements, new techniques, and recommends to maximize cost-effectiveness
- Develops system of internal control
- Works with personnel of other State and local agencies to determine design of their DP systems
- Works with personnel of other agencies to develop methods of planning, operating, evaluating agency traffic safety programs

Coordination

- Prepares and defends budget, and uses as means of coordinating activities of agencies participating in system
- Coordinates traffic records system with other DP operations of the State
- Coordinates State's system with national system

Direct

- Implements schedules and directs personnel
- Monitors system operation to maintain efficiency, accuracy, and satisfaction of user needs

MODULE 2

CONCEPTS OF AN INTEGRATED TRAFFIC RECORDS SYSTEM

GENERAL OBJECTIVES:

To acquire:

1. A knowledge of the content of traffic records, and the user data requirements of a traffic records system.

2. An understanding of the way in which an integrated traffic records system can be organized to fulfill user and program requirements.

MODULE 2

CONCEPTS OF AN INTEGRATED TRAFFIC RECORDS SYSTEM

CONTENT

2.1 Introduction
2.2 The Content of Traffic Records
2.3 Examples of User Requirements for Highway Traffic Safety Data
2.4 Functions and Organization of an Integrated Traffic Records System
2.5 Questions and Answers

REFERENCE

Design Manual for State Traffic Records Systems, Vol. I

SUGGESTED STUDY APPROACH

1. If you have the opportunity, read Chapter 3 in Vol. I, Section II, of the Design Manual before you participate in Module 2 of the Course. If you do not have that opportunity, read this chapter as soon after Module 2 as possible. In addition, read as much of the remainder of Section II (Chapters 4-7) as time permits within a day or so of participating in Module 2.

2. Read all Study Guide materials (which follows) for Module 2.

3. Note any questions you have about material either in the Design Manual or the Study Guide, and bring them to the attention of the instructor at the earliest opportunity.

CATEGORIES AND SUB-CATEGORIES OF DATA IN THE TRAFFIC RECORDS SYSTEM

DRIVER DATA

- Licensing data
- Driver performance history
- Financial responsibility
- Vehicle ownership

VEHICLE DATA

- Vehicle description
- Registration/ownership
- Inspection
- History

ROADWAY DATA

- Roadway location identification
- Roadway characteristics
- Roadway history as it relates to traffic (maintenance, improvements, accidents, violations, countermeasures)

CRASH DATA

- Identification of drivers, vehicles, passengers and pedestrians involved in traffic crashes
- Location and environmental conditions

CRASH DATA (cont'd)

- Severity of crash (fatalities, injuries, property damage)
- Descriptions of causes (officer's report, citations issued, etc.)
- Emergency medical or other services employed as the result of accidents
- Further information regarding crashes involving fatalities or those selected for indepth investigation

EMERGENCY SERVICES DATA

- Identification and location of organizations licensed to provide emergency services in response to traffic crashes
- Descriptions of equipment, personnel and services associated with organizations providing emergency rescue or medical services
- Historical information on usage and performance of organizations providing emergency services

LAW ENFORCEMENT AND ADJUDICATION DATA

- Identification, location, jurisdiction of traffic law enforcement agencies throughout State
- Records of employment of routine and selective traffic safety countermeasures
- Results pertaining to adjudication of citations for traffic law violations

EDUCATIONAL SERVICES DATA

- Identification and description of public and private organizations providing driver education or remedial training
- Description of curriculum, services, personnel and equipment employed in educational or training programs

SAFETY PROGRAM MANAGEMENT DATA

- Summaries of data from the seven data categories discussed above (totals)
- Summaries of data on crash incidence
- Summaries of data on crash factors (relating incidence of crashes to factors which may be causative)

GENERAL OBJECTIVES OF AN INTEGRATED TRAFFIC RECORDS SYSTEM

GOAL:

To provide for the collection, storage, update and retrieval of all of the data relating to the Traffic Safety environment in forms which match the needs of the various agencies' programs and functions which control and service that environment.

GENERAL OBJECTIVES:

1. To assure that adequate, appropriate and accurate data are available for the planning and implementing of programs to improve the safety of the motor vehicle transportation system within the State and its local jurisdictions.

2. To provide for the collection, storage, retrieval analysis and dissemination to users of data pertaining to each element of the controllable traffic safety environment (e.g., crashes, drivers, motor vehicles, roadways, law enforcement and emergency services).

3. To assure compatibility without duplication among the data systems of agencies at National, State and local levels that are responsible for various functional highway safety program areas (e.g., driver licensing, motor vehicle registration and inspection, roadway construction and maintenance, traffic law adjudication, driver education, emergency services, etc.).

4. To assure that appropriate traffic safety data are available to provide:

   - Basis for statistical analyses to assist State and local authorities in the planning, priority determination and implementation of Traffic Safety Programs
   - Reliable indicators of the magnitude and nature of highway traffic safety problems on National, State and local levels
   - Reliable means for identifying short-term changes and long-term trends in the magnitude and nature of highway traffic safety problems
   - Valid bases for:
     - Detecting high or potentially high accident locations and causes

- Determining health, behavorial and other factors contributing to the causes of accidents
- Designing crash, fatality and injury countermeasures
- Developing means for evaluating the cost effectiveness of crash, fatality and injury countermeasures
- Planning and implementing selective law enforcement and other operational traffic safety programs

INTEGRATION OF A TRAFFIC RECORDS SYSTEM AND DATA BASE

DEFINITION OF "INTEGRATED SYSTEM":

An information processing system that is organized, directed, and operated according to a systems approach which gives recognition to, and provides for the interrelated aspects of various functions and data elements.

1. REASONS FOR INTEGRATION

- Multiplicity of agencies, organizations and functions that utilize data relating to Traffic Safety environment.
- Many aspects of the Traffic Safety environment about which information must be furnished to fulfill requirements.
- General Objectives of Traffic Records System:
  - Compatibility without duplication
  - Adequate and accurate data to perform statistical analyses, provide reliable indicators, etc.

2. CHARACTERISTICS OF INTEGRATED SYSTEM AND DATA BASE

- Provides for collection, storage, retrieval, analysis and dissemination to users of data pertaining to all elements of Traffic Safety environment.
- Provides for the information needs of the various agencies, organizations and functions who analyze, control and service the Traffic Safety environment.

- Eliminates need for maintenance of separate and/or duplicate information files by agencies responsible for different highway safety programs.
- Allows for correlative analysis of Traffic Safety factors, thus providing capability for Traffic Safety Program management review and decision-making.

EXTENT OF AUTOMATION AND CENTRALIZATION REQUIRED FOR AN INTEGRATED TRAFFIC RECORDS SYSTEM

(For further discussion, See Design Manual, Vol. I, Chapter 3, Parts 3.4-3.5, and Chapters 6 and 7)

1. ORGANIZATION OF PROCESSING SYSTEM

- COORDINATION OF FUNCTIONS - In an integrated traffic records system, data collection and entry, data base storage, and data retrieval and dissemination must all be centrally coordinated, although they need not actually be centralized.

- SYSTEM CONFIGURATIONS - Two models are identifiable as basic approaches to system configuration (obviously with many variations possible):

  - centralized data processing configuration*

    Here the system is operated by a single State agency, such as: (1) State data processing center, (2) State Office of Highway Safety, (3) Division of Motor Vehicles, and (4) Department of Transportation.

  - distributed data processing configuration**

    Here functions associated with the various subsystems are performed by two or more data processing systems, operated by separate user agencies.

2. ENTRY OF SOURCE DATA

- If data base storage and retrieval are automated, entry of source data should be automated, in order to increase data availability in data base, minimize possibilities of human error, cut down on manpower costs and so on.

---

* See Attachment 1 to this Study Aid

** See Attachment 2 to this Study Aid

- Factors which influence the type(s) of automation to be employed for entry of source data include:
  - Currently installed equipment
  - Volumes of data
  - Costs (equipment, personnel, training, materials, space, etc.)
  - Present operations of agencies and organizations who use traffic safety data
  - Types of input acceptable to the computer system on which the data base is maintained
  - Time constraints on data entry

3. INTERCONNECTION OF SYSTEM BY COMMUNICATIONS

- Factors influencing the need for communications networks include:
  - Degree of centralization of agencies and organizations using information
  - Time constraints on data entry and dissemination
  - Cost vs. need

EXAMPLE OF A POSSIBLE CENTRALIZED PROCESSING SYSTEM CONFIGURATION

(ATTACHMENT 2 TO
STUDY AID #2-5)

EXAMPLE OF POSSIBLE DISTRIBUTED PROCESSING CONFIGURATION
INTEGRATED THROUGH TELECOMMUNICATIONS

DATA BASE SUBSYSTEMS IN AN INTEGRATED TRAFFIC RECORDS SYSTEM

CATEGORIES OF INFORMATION AROUND WHICH SUBSYSTEMS ARE BUILT:

1. CRASH
2. DRIVER
3. VEHICLE
4. ROADWAY
5. EMERGENCY MEDICAL SERVICES
6. LAW ENFORCEMENT AND ADJUDICATION
7. EDUCATIONAL SERVICES
8. MANAGEMENT STATISTICS

CRITICAL DATA ELEMENTS

- CRASH DATA SUBSYSTEM
  - Identification of drivers, vehicles, passengers and pedestrians involved in crash
  - Location and environmental conditions
  - Severity (outcome)
  - Crash description and contributing factors
  - Emergency services employed
  - Additional data pertaining to crashes resulting in fatalities or those selected for special analysis

- VEHICLE DATA SUBSYSTEM
  - Identification of all vehicles
  - Vehicle history and inspection data
  - Stolen vehicles and lost or stolen plates
  - Legal and financial data

- ROADWAY DATA SUBSYSTEM
  - Identification of roadway elements
  - Physical and operational characteristics
  - Condition, violation, and accident history.

- DRIVER DATA SUBSYSTEM
  - Unique identification of all drivers
  - Initial licensing and licensing status data
  - Driver's history
  - Legal and financial data
- EMERGENCY SERVICES DATA SUBSYSTEM
  - Identification of organizations and locations
  - Equipment, personnel and services provided by organizations
  - Data pertaining to operations
- EDUCATIONAL SERVICES DATA SUBSYSTEM
  - Identification of organization providing primary or remedial driver training
  - Curriculum, personnel and equipment of public and private organizations providing primary or remedial driver training
- LAW ENFORCEMENT AND ADJUDICATION DATA SUBSYSTEM
  - Identification of law enforcement agencies, types and jurisdictions
  - Employment of routine and selective traffic violation countermeasures
  - Adjudication of citations for traffic law violations
- SAFETY PROGRAM MANAGEMENT DATA SUBSYSTEM
  - Summary statistics and other key information relating to State operational activity levels
  - Summary statistics of accident incidence and incidence in relation to key factors in highway environment
  - Historical summary data
- ALL DATA SUBSYSTEMS DISCUSSED ABOVE
  - Linkage data to other elements in the Traffic Safety Data Subsystem
  - Software for the performance of operational processing functions

FUNCTIONS PERFORMED BY DATA SUBSYSTEMS

Data Subsystems	Functions Served By Data Systems
Driver	Control of Driver Licensing; Maintenance of Driver Performance Histories; Administration of Financial Responsibility Laws
Vehicle	Control of Vehicle Registration; Maintenance of Vehicle Inspection and Performance Histories; Administration of Titling and Lien Laws
Roadway Environment	Maintenance of an Inventory of the Roadways Environment within the State; Monitoring of Roadway Safety Problems; Monitoring of Roadway Construction and Maintenance Histories
Accident	Processing of Accident Reports by Police Officers and the Drivers Involved; Maintenance of Supplemental Accident Data Collected in Follow-up Investigations
Emergency Services	Maintenance of an Inventory of Emergency Medical Services Available Within the State for Aiding Accident Victims; Monitoring of the Emergency Services Operations; Support the Planning for an Effective Statewide Emergency Services System and the Licensing of Operators, where Applicable
Traffic Law Enforcement and Adjudication	Maintenance of an Inventory of Police Traffic Safety Countermeasures Activities; Monitoring of the Adjudication of Citations Issued for Violations of Traffic Laws
Educational Services	Maintenance of an Inventory of Driver Education (and Improvement) Services Provided within the State by Educational Institutions, Commercial Companies, and State Authorities; Support the Licensing of Commercial Companies.
Safety Program Management	Monitoring of the Traffic Environment and Traffic Safety Situation Throughout the State; Identification of Trends or Problem Areas Requiring Study or Corrective Action; Monitoring of the Progress and Effectives of Particular Programs Initiated to Improve the Traffic Safety Situation

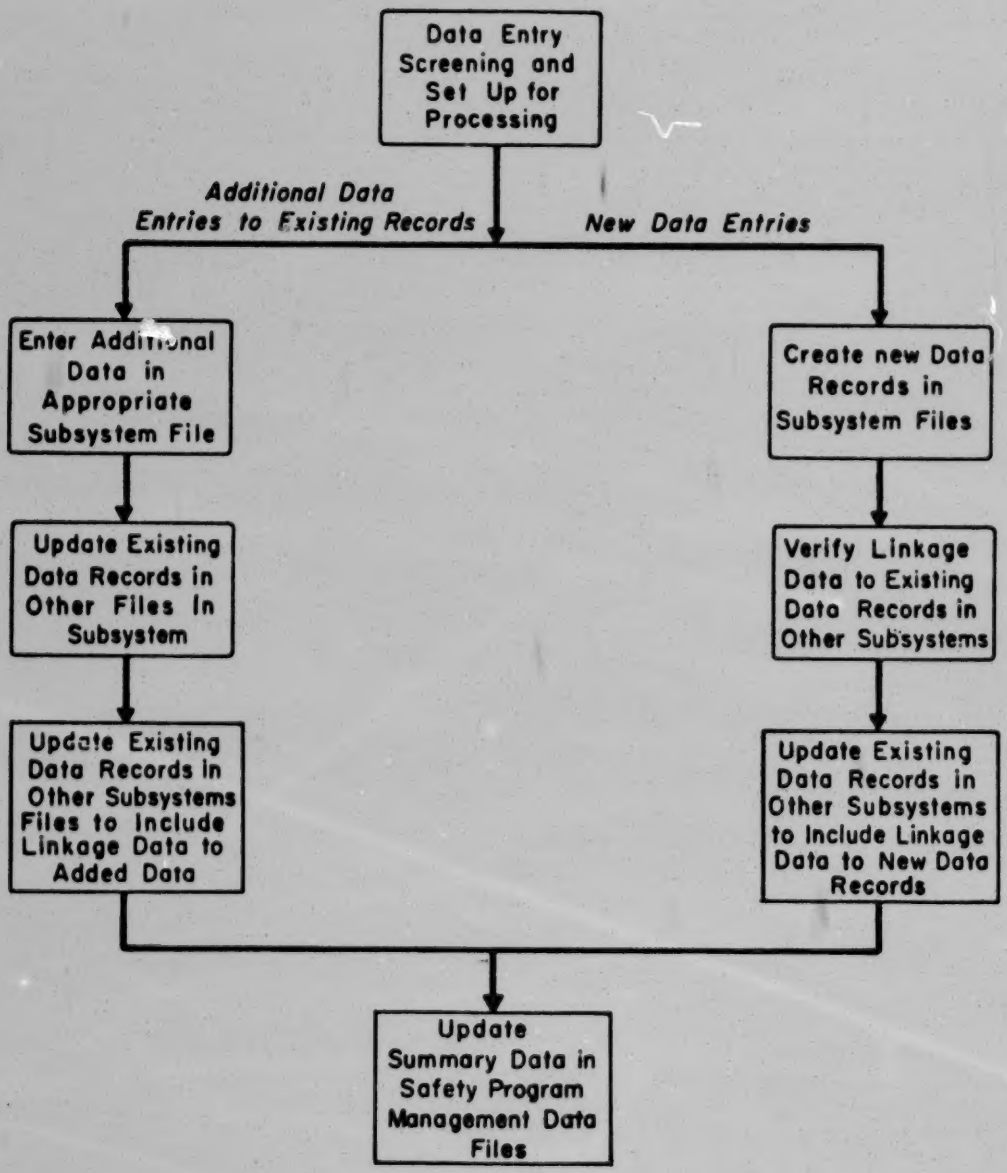
FILE STRUCTURE OF SYSTEM AND LEVELS OF FILES IN SUBSYSTEMS

Data Subsystem	File Name	Data Category Level	File Record Format	Implementation
Driver	Driver/Owner Directory	1,2	Variable Length	R
	Driver History	2	Variable Length	R
	Financial Responsibility	2	Variable Length	S
Vehicle	Vehicle Identification Directory	1	Fixed Length	R
	Registration Data	2	Fixed Length	D
	Vehicle History	2	Variable Length	R
	Stolen, Abandoned, and Lost Property Data	3	Fixed Length	S
	Titling and Financial Data	2	Variable Length	S
Roadway Environment	Roadway Location Directory	1	Fixed Length	R
	Basic Roadway Characteristics	2	Variable Length	D
	Intersection Characteristics	2	Fixed Length	D
	Bridge Structure Inventory	2	Fixed Length	D
	Roadway Location History	2,3	Variable Length	R
Accident	Accident Case Directory	1	Fixed Length	R
	Basic Case Data	2	Variable Length	D
	Fatalities Analysis Supplement	3	Variable Length	S
	In-Depth Investigation Supplement	3	Variable Length	S
Emergency Services	Emergency Services Directory	1	Fixed Length	R
	Emergency Medical Services Inventory	2	Variable Length	D
	Hospital/Medical Center Emergency Room Inventory	2	Fixed Length	D
	EMS Operations	3	Variable Length	S
Traffic Law Enforcement and Adjudication	Enforcement and Adjudication Directory	1	Fixed Length	R
	Selective Countermeasures Actions	2	Variable Length	D
	Convictions Data	3	Fixed Length	S
	Non-Convictions Data	3	Fixed Length	S
Educational Services	Educational Services Directory	1	Fixed Length	D
	Educational Institution Inventory	2	Variable Length	S
	Commercial Companies Inventory	2	Variable Length	S
	State Remedial Services Inventory	2	Variable Length	R
Safety Program Management	Operational Summary	2	Fixed Length	R
	Accident Incidence Summary	2	Fixed Length	R
	Accident Factors	2	Fixed Length	D

LEGEND: R = Implementation as Primary File on Random Access Storage Media Recommended
D = Implementation as Primary File on Random Access Storage Media Desirable
S = Implementation as Secondary File on Sequential Access Media Suggested

FUNCTIONS OF SAFETY DATA ANALYSIS AND REPORTING SUBSYSTEM SOFTWARE

Functional Category	Specific Functions
Data Base Management	Generation of system data records Verification of inter-file linkage trail Modification of data in existing data records Access control Data retrieval
Data Analysis	Data screening and tabulation Performance of simple data manipulation computations Performance of statistical data analysis computations
Report Generation	Organization of data for presentation Generation of alphanumeric characters for data descriptions and spacing and line feed characters for output presentation format Assembling of output tables for access by output or communication programs
Program Generation	Compilation of software for processing special requests


Data Entry Screening and Set Up for Processing
Additional Data Entries to Existing Records
New Data Entries
Enter Additional Data in Appropriate Subsystem File
Update Existing Data Records in Other Files In Subsystem
Update Existing Data Records In Other Subsystems Files to Include Linkage Data to Added Data
Create new Data Records in Subsystem Files
Verify Linkage Data to Existing Data Records in Other Subsystems
Update Existing Data Records in Other Subsystems to Include Linkage Data to New Data Records
Update Summary Data in Safety Program Management Data Files

GENERAL FUNCTIONAL FLOW FOR DATA ENTRY OPERATIONS

MODULE 3

THE CRASH DATA SUBSYSTEM

GENERAL OBJECTIVES:

To acquire:

1. An understanding of the central importance of Crash Data to a Traffic Records System, including a knowledge of the data elements in the Crash Data Subsystem, and a knowledge of its uses.

2. A knowledge of the sources and means of collecting data relating to the pre-crash, crash, and post-crash phases of traffic crashes.

3. An acquaintance with standard coding conventions recommended for Crash Data.

4. An appreciation of the ways in which the collection, coding, and reporting of Crash Data impact upon one's own functions in the Traffic Records System.

MODULE 3

THE CRASH DATA SUBSYSTEM

CONTENT

3.1 Introduction
3.2 Central Importance of Crash Data to System
3.3 Crash Data Required by Highway Safety Program
3.4 Uses of Crash Data
3.5 Sources and Means of Collecting Crash Data
3.6 Coding Conventions
3.7 Illustrations of Crash Data Requirements and Uses (Guest Speaker from Law Enforcement Agency)
3.8 Problem-Solving/Discussion Period

REFERENCE

Design Manual for State Traffic Records Systems, Volume II, Section 4.

SUGGESTED STUDY APPROACH

1. As early as possible in the course of the Module 3 presentation familiarize yourself with the Study Guide materials (which follow) for Module 3. Read the text material from Vol. II, Section 4 carefully.

2. Note any questions you may have about the material you read, and bring these up at an appropriate time during the Module 3 presentation.

3. Try to think of examples of reports the Traffic Records System in your State could generate which would be of particular use in helping to attain Program goals.

CRITICAL DATA ELEMENTS REQUIRED FOR THE CRASH DATA SUBSYSTEM

1. IDENTIFICATION OF CRASH
   - Unit of government (state, county, city parish, township, etc.)
   - Crash identification number
   - Driver identification
   - Vehicle identification and ownership
   - Roadway location identification
   - Time of crash (date, day of week, hour of day)

2. DRIVER(S)/PEDESTRIAN(S)
   - Condition(s) (asleep, drinking, illness, etc.)
   - Alcohol and drugs involvement (BAC when taken)
   - Traffic law violation(s)
   - Driver precrash actions

3. VEHICLE(S)
   - Defects
   - Speed
   - Maneuver (leading to actual collision dynamics)

3. VEHICLE(S) (cont'd)
   - Point of impact
   - Damage severity
   - Mileage or odometer reading
   - First harmful event (classification and location)

4. ACCIDENT SEVERITY
   - Property damage
   - Injury
   - Fatal

5. VICTIMS
   - Injury type
   - Age
   - Sex
   - Seating position/pedestrian
   - Use of restraints
   - Blood alcohol concentration (drivers in fatal crashes)
   - Ejection
   - Extrication time

6. ENVIRONMENTAL CONDITIONS

- Light
- Weather
- Surface conditions
- Maximum safe speed
- Roadway defects
- Condition of traffic control devices
- Physical design features, including roadside safety hazards (e.g., dangerous abutments, canals; improperly built or maintained appurtenances such as solid utility poles rather than breakaway, failure to install energy absorbing devices, failure to bury guard rail ends, etc.)

7. EMERGENCY RESPONSE

- Emergency services, type called
- Time traffic restored
- Time of initial notification
- Time ambulance called
- Time ambulance arrived
- Time ambulance left scene
- Time ambulance arrived at hospital
- Extrication

(All other EMS data collected is held in Emergency Services Data Subsystem)

(STUDY AID #3-3)

Hypothetical Traffic Records System Report Summarizing Fatalities and Injuries by Reported Driver and Pedestrian BAC and Time of Day

FATALITY AND INJURY SUMMARY BY REPORTED BAC OF DRIVER AND PEDESTRIAN, TIME AND DAY

DATE PREPARED XX/XX/XX JURISDICTION XXXXXXXXX REPORTING PERIOD

	MON	TUE	WED	THU	FRI	SAT	SUN
TIME 0001-0100	NNNNN	NNNNN	NNNNN	NNNNN	NNNNN	NNNNN	NNNNN
TOTAL FATAL CRASHES	NNNNN						
TOTAL WITH REPORTED ALCOHOL	NNNNN						
TOTAL INJURY CRASHES	NNNNN						
TOTAL WITH REPORTED ALCOHOL	NNNNN						
DRIVER FATALITIES							
BAC NOT REPORTED	NNNNN						
BAC REPORTED NEG	NNNNN						
BAC REPORTED .01-.04%	NNNNN						
BAC REPORTED .05-0.9%	NNNNN						
BAC REPORTED .20-.24%	NNNNN						
BAC REPORTED .25% +	NNNNN						
DRIVER INJURIES							
BAC NOT REPORTED	NNNNN						
BAC REPORTED .25% +	NNNNN						
PEDESTRIAN FATALITIES							
BAC NOT REPORTED	NNNNN						
BAC REPORTED .25% +	NNNNN						
PEDESTRIAN INJURIES							
BAC NOT REPORTED	NNNNN						
BAC REPORTED .25% +	NNNNN						
PASSENGER FATALITIES							
CRASHES WITH REPORTED ALCOHOL	NNNNN						
CRASHES WITHOUT REPORTED ALCOHOL	NNNNN						
PASSENGER INJURIES							
CRASHES WITH REPORTED ALCOHOL	NNNNN						
CRASHES WITHOUT REPORTED ALCOHOL	NNNNN						
TIME 0101-0100							
TOTAL FATAL CRASHES	NNNNN						
TIME 2301-2400							

CRASH STATISTICS SUMMARIZED BY APPLICABLE MOTOR VEHICLE STANDARD-3RD QUARTER, 1970 MM/DD/YY

STANDARD 103. WINDSHIELD DEFROSTING AND DEFOGGING SYSTEMS (EFFECTIVE 1/1/68) PAGE 1 OF 1

THIS REPORT SHOWS:

1. THE NUMBER AND PERCENTAGE OF VEHICLES REGISTERED WHICH DO AND DO NOT COMPLY WITH THIS STANDARD.
2. THE RELATIVE CRASH INVOLVEMENT FOR THE TWO CLASSES OF VEHICLES, DURING CONDITIONS WHICH MIGHT RELATE TO THIS STANDARD.

PART 1

NUMBER OF VEHICLES (REGISTERED) MANUFACTURED DURING OR AFTER 1968 MODEL YEAR.....XXXX OR XX.X PERCENT

NUMBER OF OTHER VEHICLES REGISTERED.....XXXXXX OR XX.X PERCENT

TOTAL NUMBER OF VEHICLES REGISTERED.....XXXXXX

NUMBER OF VEHICLES IN THIS SAMPLE MANUFACTURED DURING OR AFTER 1968 MODEL YEAR.....XXX OR XX.X PERCENT

NUMBER OF OTHER VEHICLES IN THIS SAMPLE.....XXXX OR XX.X PERCENT

TOTAL NUMBER OF VEHICLES IN THIS SAMPLE.....XXXX

PART 2

	NUMBER OF CRASHES IN THIS SAMPLE	PERCENT OF REG'D VEHICLES	WHICH IS XX.X PERCENT OF VEHICLES REGISTERED: CRASH FACTORS RAIN/DRIZZLE	SNOW	CLEAR	OTHER	CRASH FACTORS NOV/DEC/JAN/FEB/MAR	APR/MAY/JUN JULY/AUG/SEP/OCT
VEHICLES WHICH DO COMPLY	XXXX	XX.X	X.XX	X.XX	X.XX	X.XX	X.XX	
VEHICLES WHICH DO NOT COMPLY	XXXX	XX.X	X.XX	X.XX	X.XX	X.XX	X.XX	X.XX
TOTAL VEHICLES	XXXXX	XX.X	X.XX	X.XX	X.XX	X.XX	X.XX	X.XX

Hypothetical TRS Report Summarizing Crash Statistics by a Particular Motor Vehicle Standard

COMPARATIVE ANALYSIS OF VEHICLE DEFECTS REPORTED AT INSPECTION AND AT CRASH

DATE PREPARED XX/XX/XX JURISDICTION XXXXXXXXXX REPORTING PERIOD

VEHICLE TYPE XXXXXXXXXX NUMBER VEHICLES REGISTERED FOR THIS TYPE NNNNNNN
MODEL YEAR 19XX

				% OF VEHICLES WITH DEFECT AND DEV FROM NORM							
MAKE	MODEL	NBR REG IN STATE	% OF TYPE	SERVICE BRAKES	HD/LTS REAR NO AIM	LIGHTS	STEERNG	TIRE/ WHEEL	WNDSHLD VISIB	OTHER	NONE
XXXXXX	XXXXXXX	NNNNN	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN

			% CRSH INV WITH DEF REP AT CRSH AND DEV FROM NORM									
NBR CRSH INVOLV	% CRSH FOR TYP	SERVICE BRAKES	HD/LTS REAR NO AIM	LIGHTS	STEERNG	TIRE/ WHEEL	WNDSHLD VISIB	NOT KNOWN	NONE DETECT	NOT STATED	AVG MIL AT ACC
NNNNN	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN	NN.NN	NNNNNN

PERCENTAGE DISTRIBUTION OF CRASH INVOLVED VEHICLES BY MONTHS SINCE LAST INSPECTION

				0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12+
				NN.N	NN.N	NN.N	NN.N	NN.N	NN.N	NN.N	NN.N	NN.N	NN.N	NN.N	NN.N	NN.N
XXXXXX	XXXXXXX	NNNNN	NN.NN	NN.NN ± NN.NN	- - -											

Hypothetical TRS Report Comparing Vehicle Defects Reported at Inspection with those Reported at Crashes.

DRIVER CRASH INVOLVEMENT BY AGE, DRIVER EDUCATION AND LIGHT CONDITIONS

DATE PREPARED: XX/XX/XX JURISDICTION XXXXXXXXXX PERIOD XX/XX/XX - XX/XX/XX PAGE XXX

AGE OF CRASH INVOLVED DRIVERS	TOT LIC DRV	------DAWN------- FATAL	INJUR	PROP-	-------DAY------- FATAL	INJUR	PROP-	------DUSK------- FATAL	INJUR	PROP-	-------NITE------ FATAL	INJUR	PROP-	------TOTAL------- FATAL	INJUR	PROP-
UNDER 16 MALE	XXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX
W DE	XXX	XXXXX														
W/O DE	XXX	XXXXX														
UNDER 16 FE-MALE	XXX	XXXXX														
W DE	XXX	XXXXX														
W/O DE																
16 MALE																
.																
.																
16FEMALE																
.																
.																
17 MALE																
.																
.																

LIGHT OF HOUR TABLES BY SEASON WOULD BE USED
TO PLACE CRASH TIME IN PROPER LIGHTING COLUMN.

Hypothetical TRS Report Showing Driver Crash Involvement by Age, Driver Education, and Light Conditions.

(STUDY AID #3-7)

AGE GROUP IN ORDER BY CRASH INVOLVEMENTS OF DRIVER AS A % OF LICENSED DRIVERS OF AGE

DATE PREPARED XX/XX/XX JURISDICTION XXXXXXXXXXX PERIOD XX/XX/XX - XX/XX/XX PAGE XXX

DRIVER'S AGE	NUMBER OF STATE LICENSED DRIVERS	FATAL CRASH DRIVERS INVOLVD	% OF LICEN DRIVERS	INJURY CRASHES DRIVERS INVOLVD	% OF LICEN DRIVERS	PROP DAM DRIVERS INVOLVD	CRASH % OF LICEN DRIVERS	TOTAL STATE DRIVERS INVOLVD	LICENSED % OF LICENSED DRIVERS	M/V/M CRASH PER M/V/M	OUT OF STATE DRIVERS INVOLVD	TOTAL DRIVERS INVOLVD
19	X,XXX,XXX	XXX,XXX	XX.X	XXX,XXX	XX.X	XXX,XXX	XX.X	XXX,XXX	XX.X	XXXX	XXX,XXX	XXX,XXX
17												
48												
Totals	X,XXX,XXX	XXX,XXX	XX.X	XXX,XXX	XX.X	XXX,XXX	XX.X	XXX,XXX	XX.X	XXXX	XXX,XXX	XXX,XXX

Hypothetical TRS Report Relating Licensed Drivers in Three Age Groups to Crash Involvement.

TRAFFIC CITATIONS AND RESULTANT CONVICTIONS

DATE PREPARED: XX/XX/XX STATE OF XXXXXXXXXXX PERIOD: XX/XX/XX - XX/XX/XX PAGE XXX

TYPE OF VIOLATN	CITATIONS TOTAL NO	CITATIONS INSTATE #	CITATIONS INSTATE %	CITATIONS OUT OF STATE #	CITATIONS OUT OF STATE %	CONVICTED AS CITED TOTAL #	CONVICTED AS CITED INSTATE #	CONVICTED AS CITED INSTATE %	CONVICTED-CITATN OUTST #	CONVICTED-CITATN OUTST %	CONVICTED-CITATN CHANGE
SPEED	XXXXXX	XXXXXX	XX.X	XXXXXX	XX.X	XXXXXX	XXXXXX	XX.X	XXXXXX	XX.X	XXXXXX
FAIL TO YLD	XXXXXX										
WRONG WAY	XXXXXX										
IMPROP TURN	XXXXXX										
FOLLOW CLOS	XXXXXX										
IMPROP PASS	XXXXXX										
RECKLESS-NESS	XXXXXX										
OMVI	XXXXXX										
VEHICLE DEF.	XXXXXX										
DR W INTOX	XXXXXX										
DR. UND INFL	XXXXXX										
DR W IMPRD	XXXXXX										
OTHER	XXXXXX										
TOTAL	XXXXXX										

Hypothetical TRS Report Showing Citations, Convictions as Cited, and Citation Change Statistics for Various Traffic Violations

STANDARD POLICE TRAFFIC COLLISION REPORT

(FROM HIGHWAY SAFETY PROGRAM MANUAL, VOL. 10)

Form A

STATE OF _____

STANDARD POLICE TRAFFIC COLLISION REPORT

DATE OF ACCIDENT | TIME ☐ A.M. ☐ P.M. | CASE NUMBER | SHEET ___ of ___

ACCIDENT INVOLVED
☐ TWO (OR MORE) M.V. ☐ VEH.-PEDESTRIAN ☐ VEH.-OBJECT
☐ SINGLE M.V. (NON-COLLISION) ☐ OTHER _____

ACCIDENT SEVERITY
☐ FATAL ☐ INJURY ☐ PROPERTY DAMAGE

LOCATION
NAME (NO.) OF STREET OR HIGHWAY | CITY, TOWN OR TOWNSHIP
REFERENCE (Milepost, Sec., Intersection, Other Landmark) | DISTANCE AND DIRECTION FROM REFERENCE
OBJECT STRUCK | NAME OF OBJECT | LOCATION OF OBJECT

VEHICLE NO. ___
VEHICLE MAKE | MODEL | YEAR
LICENSE PLATE NUMBER | STATE | ODOMETER
IDENTIFICATION NUMBER
TRAILER LICENSE PLATE NUMBER | STATE
TOWED TO:

VEHICLE NO. ___
VEHICLE MAKE | MODEL | YEAR
LICENSE PLATE NUMBER | STATE | ODOMETER
IDENTIFICATION NUMBER
TRAILER LICENSE PLATE NUMBER | STATE
TOWED TO:

OPERATOR NO. ___
FULL NAME | SEX
ADDRESS
LICENSE NUMBER | STATE | DATE OF BIRTH

OPERATOR NO. ___
FULL NAME | SEX
ADDRESS
LICENSE NUMBER | STATE | DATE OF BIRTH

PASSENGERS
NO. 1 — FULL NAME | SEX | ADDRESS | AGE
NO. 2 — FULL NAME | SEX | ADDRESS | AGE
NO. 3 — FULL NAME | SEX | ADDRESS | AGE

PASSENGERS OR PEDESTRIANS
NO. 1 — FULL NAME | SEX | ADDRESS | AGE
NO. 2 — FULL NAME | SEX | ADDRESS | AGE
NO. 3 — FULL NAME | SEX | ADDRESS | AGE

FIRST AID BY: ☐ POLICE ☐ AMB. ATTEND ☐ PHYSICIAN ☐ BYSTANDER ☐ UNKNOWN ☐ NONE

INJURED REMOVED TO:

REMOVED BY: ☐ AMBULANCE ☐ POLICE VEH. ☐ OTHER ☐ NONE

BODILY INJURY

Occupants: Veh. ___	Oper.	Pass. No. 1	Pass. No. 2	Pass. No. 3
Seat Location†				
Injury Classification††				
Ejected from Vehicle*				
Seat Belt** — Lap Belt				
Diagonal Belt				
Combination				
Child Restraint				
Other –				

BELT USE REPORTED BY: ☐ OFFICER ☐ USER ☐ WITNESS

BODILY INJURY

Occupants: Veh. ___	Oper.	Pass. No. 1	Pass. No. 2	Pass. No. 3
Seat Location†				
Injury Classification††				
Ejected from Vehicle*				
Seat Belt** — Lap Belt				
Diagonal Belt				
Combination				
Child Restraint				
Other –				

BELT USE REPORTED BY: ☐ OFFICER ☐ USER ☐ WITNESS

CODES

† SEAT LOCATION
FR | CR | RR
FC | CC | RC
FL | CL | RL
XX – Unknown
P – Pedestrian
SVP – Special Vehicle Passenger

†† INJURY CLASSIFICATION
1 – No Injury
2 – Injury
3 – Fatal

* EJECTION
A – Not Ejected
B – Partial
C – Total
D – Unknown

** SEAT BELT
U – Used
NU – Not Used
NI – Not Installed
F – Failure
UU – Use Unknown

WITNESSES	FULL NAME	ADDRESS
	FULL NAME	ADDRESS
	FULL NAME	ADDRESS

STATE OF _____
STANDARD POLICE TRAFFIC COLLISION REPORT

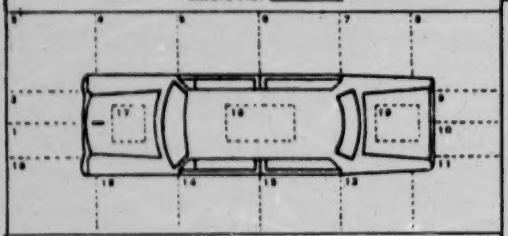
Page 3

CASE NUMBER | SHEET ___ of ___

VEHICLE DAMAGE AREAS

VEHICLE DAMAGE SEVERITY
Enter Codes in Vehicle Damage Area(s)*

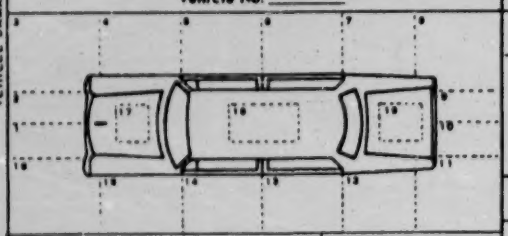
Vehicle No. _____



20 Undercarriage _____

Body Style _____

Vehicle No. _____



20 Undercarriage _____

Body Style _____

* SEVERITY CODES
1 SLIGHT OR MINOR 2 MODERATE 3 SEVERE OR EXTREME

ROADWAY/ENVIRONMENTAL CONDITIONS

Roadway	Surface	Weather
☐ HOLES, RUTS, BUMPS	☐ DRY	☐ CLEAR
☐ LOOSE SURFACE MATERIAL	☐ WET	☐ RAIN
☐ OBJECT(S) ON ROAD	☐ SNOW	☐ SNOW
☐ SOFT SHOULDER	☐ ICE	☐ FOG
☐ OTHER	☐ OTHER	☐ OTHER

TRAFFIC CONTROLS

SIGNALS ☐ YES ☐ NO | SIGNALS OPERATING ☐ YES ☐ NO

☐ NO OTHER CONTROLS
☐ OTHER CONTROLS (Specify) _____

TRAFFIC FLOW	TRAFFIC LANES
Temporary Change in Traffic Direction ☐ YES ☐ NO	☐ TEMPORARY REDUCTION IN NO. LANES ☐ TEMPORARY REDUCTION IN LANE WIDTH ☐ NONE

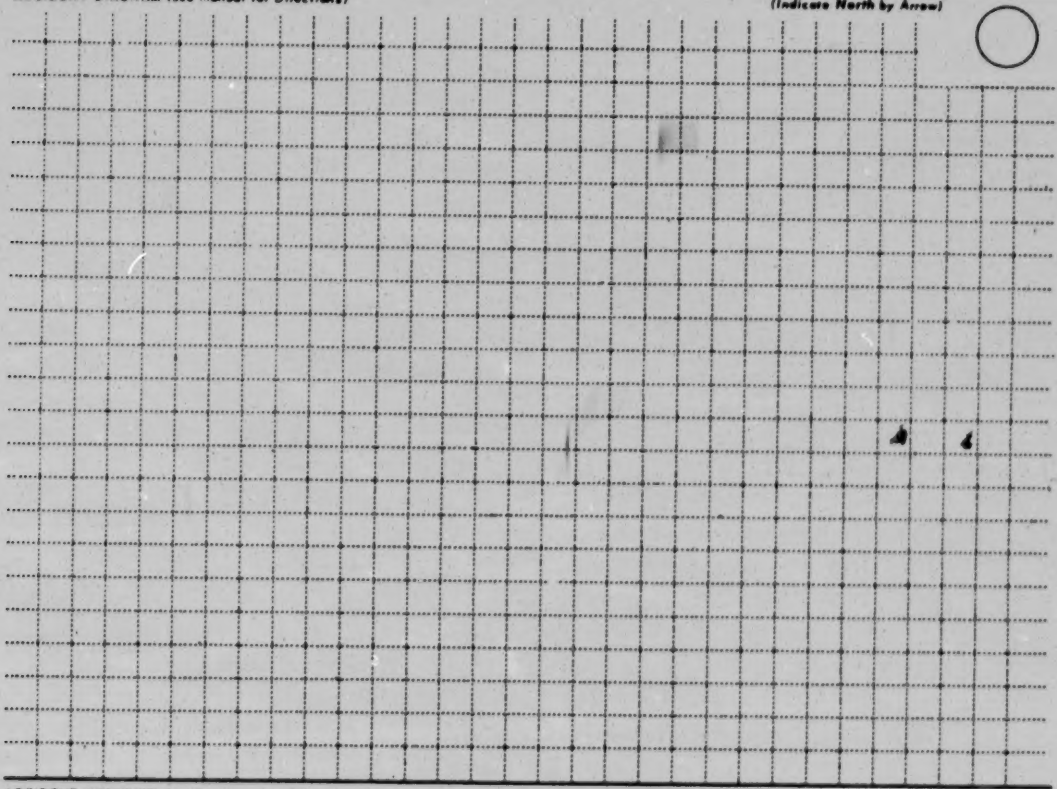
ALCOHOL	ALCOHOL INDICATED? ☐ YES ☐ NO ☐ UNKNOWN	TEST REQUESTED FOR: ☐ OPER. NO (S) _____ ☐ PED NO (S) _____	☐ NO TEST
CITATIONS	CITATIONS GIVEN TO: ☐ OPERATOR NO (S) _____	☐ PEDESTRIAN NO (S) _____	☐ NONE
PHOTOS	POLICE PHOTOS TAKEN? ☐ YES ☐ NO	MOTORCYCLISTS	ALL REQUIRED SAFETY EQUIPMENT USED? ☐ YES ☐ NO ☐ UNKNOWN

AGENCIES NOTIFIED BY POLICE

NAME _____
REASON FOR NOTIFICATION _____
NAME _____
REASON FOR NOTIFICATION _____
NAME _____
REASON FOR NOTIFICATION _____

Page 6

ACCIDENT DIAGRAM (See Manual for Directions) (Indicate North by Arrow)

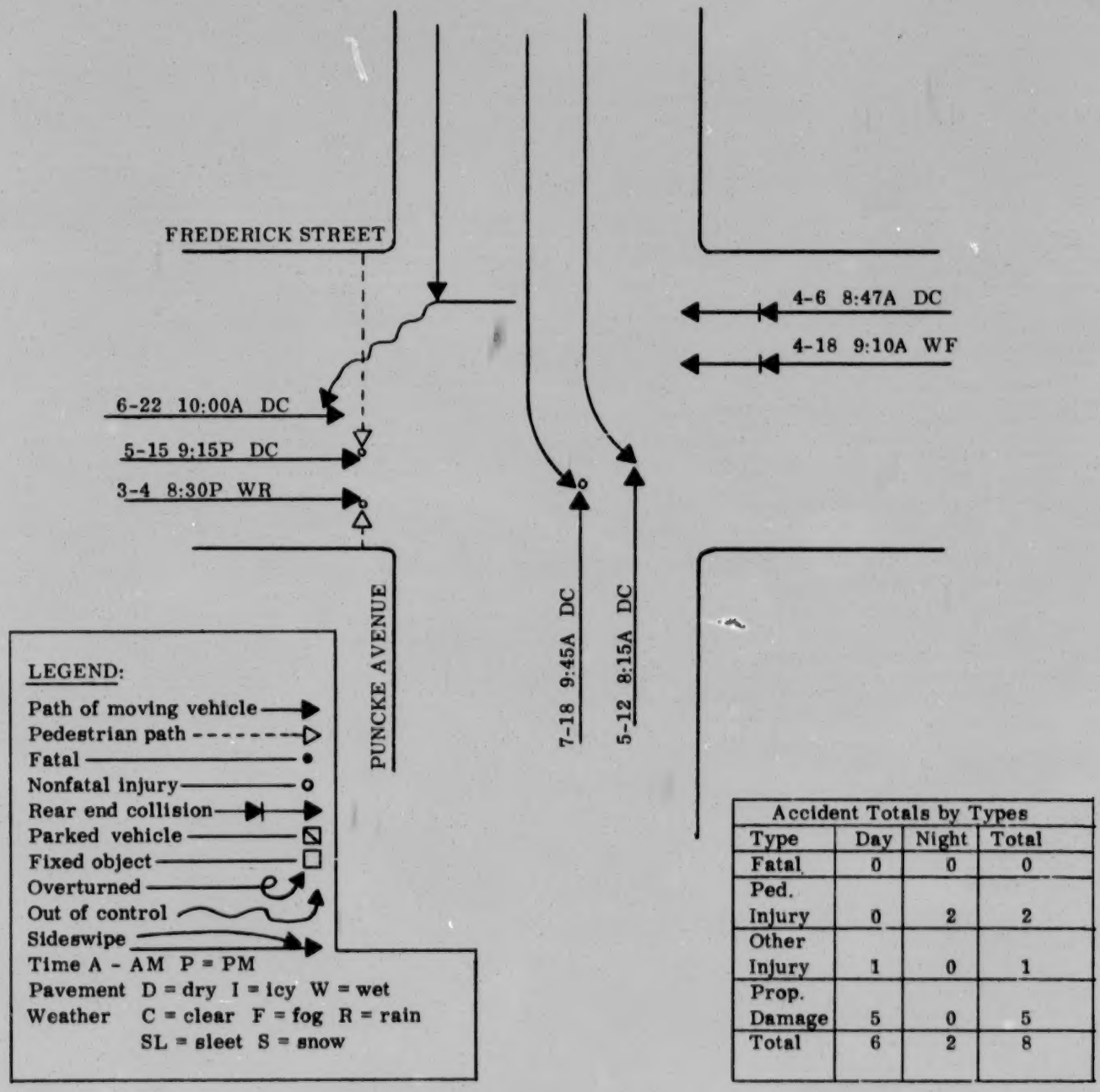


ACCIDENT DESCRIPTION (See Manual for Directions)

POLICE NOTIFIED	DATE	TIME	A.M. P.M.	TIME POLICE ARRIVED	A.M. P.M.
REPORTING OFFICER	BADGE NO.	UNIT	DEPARTMENT	DATE	
APPROVED BY				DATE APPROVED	

COLLISION DIAGRAM

COLLISION DIAGRAM



Accident Totals by Types			
Type	Day	Night	Total
Fatal	0	0	0
Ped. Injury	0	2	2
Other Injury	1	0	1
Prop. Damage	5	0	5
Total	6	2	8

MODULE 4

THE DRIVER DATA SUBSYSTEM

GENERAL OBJECTIVES:

To acquire:

1. A knowledge of the data elements in the Driver Data Subsystem and a knowledge of its uses.
2. A knowledge of the sources of Driver Data and means of collecting it.
3. An acquaintance with standard coding conventions recommended for Driver Data.
4. An appreciation of the ways in which the collection, coding, and reporting of Driver Data impact on your own functions in the Traffic Records System.

MODULE 4

THE DRIVER DATA SUBSYSTEM

CONTENT

4.1 Introduction
4.2 Driver Data Required by Highway Safety Program
4.3 Uses of Driver Data by Safety Program Area
4.4 Sources and Means of Collecting Driver Data
4.5 Coding Conventions
4.6 Illustrations of Driver Data Requirements and Uses (Guest Speaker from Drivers Licensing Agency)
4.7 Problem-Solving/Discussion Period

REFERENCE

Design Manual for State Traffic Records Systems, Vol. II, Section 1

SUGGESTED STUDY APPROACH

1. Familiarize yourself with the Study Guide material (which follows) for Module 4. Read the descriptive portion of Vol. II, Section I carefully.

2. Note any questions you may have about what you read, and bring these up at an appropriate time during the Module presentation.

CRITICAL DATA ELEMENTS REQUIRED FOR THE DRIVER DATA SUBSYSTEM

1. IDENTIFICATION
   - Name - last, first and middle
   - Address - house number, street, city, state, zip code
   - Identification number(s)
   - Date and place of birth
   - Sex
   - Physical characteristics (height, weight, color of eyes and hair, etc.)
2. DRIVER EDUCATION
   - Program type
   - Date of completion
   - Name of organization
   - Type of organization
3. LICENSING
   - Date of examination
   - Results
   - Restrictions
4. MEDICAL
   - Physical deficiencies
   - Mental or nervous impediments
   - Alcohol/drug problems
5. DRIVING PERFORMANCE
   - Alcohol/drug involvements
   - Crash involvements
   - Traffic violation convictions
   - Department actions
   - Prior driving experience (prior to licensing in this State)

MODULE 5

THE VEHICLE DATA SUBSYSTEM

GENERAL OBJECTIVES:

To acquire:

1. A knowledge of the data elements in the Vehicle Data Subsystem and a knowledge of its uses.
2. A knowledge of the sources of Vehicle Data and means of collecting it.
3. An acquaintance with standard coding conventions recommended for Vehicle Data.
4. An appreciation of the ways in which the collection, coding, and reporting of Vehicle Data impact on one's own functions in the Traffic Records System.

MODULE 5

THE VEHICLE DATA SUBSYSTEM

CONTENT

5.1 Introduction
5.2 Vehicle Data Required by Highway Safety Programs
5.3 Uses of Vehicle Data by Safety Program Area
5.4 Sources and Means of Collecting Vehicle Data
5.5 Coding Conventions
5.6 Illustrations of Vehicle Data Requirements and Uses -- Guest Speaker from Vehicle Registration Agency
5.7 Problem-Solving/Discussion Period

REFERENCE

Design Manual for State Traffic Records Systems, Vol. II, Section 2.

SUGGESTED STUDY APPROACH

1. Familiarize yourself with the Study Guide material (which follows) for Module 5. Read especially the descriptive portion at the beginning of Vol. II, Section 2.

2. Note any questions you may have about what you read, and bring these up at an appropriate time during the Module presentation.

CRITICAL DATA ELEMENTS REQUIRED FOR THE VEHICLE DATA SUBSYSTEM

VEHICLE IDENTIFICATION DATA

- Make
- Model
- Model year
- Body type
- Vehicle identification number (VIN)
- Other vehicle descriptive data
  - Empty weight (passenger car)
  - Gross laden weight (commercial vehicle)
  - Engine size
  - Motorcycle engine size
  - Fuel type
  - Length, width, number axles (commercial vehicle)
  - Seat capacity (buses)

VEHICLE OWNERSHIP DATA

- Owner identification
- Current address (residence) - house number, street, city, state, zip code
- Principal location of garaging

VEHICLE OWNERSHIP DATA (cont'd)

- Current registration plate number
- Current title number
- Previous title number
- Previous ownership
- Odometer reading at transfer of ownership
- Registration expiration date

VEHICLE HISTORY DATA

- Crash
  - Date of event
  - Severity (damage to vehicle)
- Inspection
  - Date
  - Defects by category
  - Mileage or odometer reading
  - Defect repair cost
- Registration withdrawals
  - Date of withdrawal
  - Date of reinstatement
- Stolen or abandoned
  - Date of event
  - Disposition

MODULE 6

THE ROADWAY DATA SUBSYSTEM

GENERAL OBJECTIVES:

To acquire:

1. A knowledge of the data elements in the Roadway Data Subsystem and a knowledge of its uses.
2. A knowledge of the sources of Roadway Data and means of collecting it.
3. An acquaintance with standard coding conventions recommended for Roadway Data.
4. An appreciation of the ways in which collection, coding, and reporting of Roadway Data impact on one's own function in the Traffic Records System.

MODULE 6

THE ROADWAY DATA SUBSYSTEM

CONTENT

6.1 Introduction
6.2 Roadway Data Required by Highway Safety Program
6.3 Uses of Roadway Data, by Safety Program Area
6.4 Sources and Means of Collecting Roadway Data
6.5 Coding Conventions
6.6 Illustrations of Roadway Data Requirements and Uses -- Guest Speaker from Highway Department
6.7 Problem-Solving/Discussion Period

REFERENCE

Design Manual for State Traffic Records Systems, Vol. II, Section 3.

SUGGESTED STUDY APPROACH

1. Familiarize yourself with the Study Guide materials (which follow) for Module 6. Read especially the descriptive portion at the beginning of Vol. II, Section 3.

2. Note any questions you may have about this material, and bring these up at an appropriate time.

CRITICAL DATA ELEMENTS REQUIRED FOR THE ROADWAY DATA SUBSYSTEM

1. ROADWAY IDENTIFICATION DATA
   - Unit of Government (city, county)
   - Class of traffic way
   - Road number/street name
   - Precise location descriptor
     - Point location
     - Type of area development

2. ROADWAY CHARACTERISTICS DATA
   - Design characteristics
   - Traffic control devices
   - Traffic characteristics

3. DATA REQUIRED FOR BRIDGES ONLY
   - Bridge structure rating
   - Proposed improvements

4. ROADWAY HISTORY BY LOCATION
   - Improvements
   - Road defects
   - Maintenance
   - Crashes
   - Traffic violation convictions
   - Countermeasures

FORM FOR ORDERING DATA IN SUPPORT OF TRAFFIC SIGNAL WARRANTS

TRAFFIC SECTION

MINIMUM TRAFFIC SIGNAL WARRANTS

CITY _____ DATE _____

INTERSECTION _____

LOCATION _____ (RURAL or URBAN) ① PRESENT WARRANT _____ (YES or NO) FORECASTED WARRANT _____ (YEAR)

PEAK 8 HOUR VOLUME (Vehicles and/or Pedestrians per hour)									
TIME (Use same hours both streets)									
MAJOR STREET (Total both approaches)									
MINOR STREET (One direction only) ②									
PEDESTRIAN	(Highest volume crosswalk crossing the major street)								

WARRANT	DESCRIPTION	NO. of LANES MAJOR STREET	NO. of LANES MINOR STREET	RURAL① MINIMUM	URBAN MINIMUM	No. hrs. met (8 Req'd.)	COMPLIANCE (Yes or no)
NO. 1 MINIMUM VEHICULAR VOLUMES	(A) Volume required for each of any 8 hours on major street. (Total of both approaches)	1	1	350	500		
		2 or more	1	420	600		
		2 or more	2 or more	420	600		
		1	2 or more	350	500		
	(B) Volume required for each of any 8 hours on minor street approach. (One direction only) ②	1	1	105	150		
		2 or more	1	105	150		
		2 or more	2 or more	140	200		
		1	2 or more	140	200		
NO. 2 INTERRUPTION OF NTINUOUS TRAFFIC	(A) Volume required for each of any 8 hours on major street. (Total of both approaches)	1	1	525	750		
		2 or more	1	630	900		
		2 or more	2 or more	630	900		
		1	2 or more	525	750		
	(B) Volume required for each of any 8 hours on minor street approach. (One direction only) ②	1	1	50	75		
		2 or more	1	50	75		
		2 or more	2 or more	70	100		
		1	2 or more	70	100		

WARRANT	DESCRIPTION	RURAL① MINIMUM	URBAN MINIMUM	No. hrs. met (8 Req'd.)	COMPLIANCE (Yes or no)
NO. 3 MIMIMUM PEDESTRIAN VOLUME	(A) Volume required for each of any 8 hours. on major street entering intersection on both approaches, or	420	600		
	Volume required for each of any 8 hours on major street entering intersection on both approaches where there is a raised median island 4 feet or more wide.	700	1000		
	(B) Pedestrians per hour on highest volume cross walk crossing the major street. (Use the same as A)	105	150		
NO. 4 PROGRESSIVE WARRANT	(A) Isolated one way street or street with unidirectional traffic where adjacent signals are so far apart that desired degree of vehicle platooning and speed control would otherwise be lost, OR				
	(B) Two way street where adjacent signals do not provide the desired degree of platooning and speed control; and the proposed and adjacent signals would constitute a progressive signal system.				
NO. 5 ACCIDENT EXPERIENCE	(A) The adequate trial of less restrictive remedies with satisfactory observance and enforcement has failed to reduce the accident frequency, and				
	(B) Minimum number of accidents involving personal injuries or property damage over $100.00 in a 12 month period susceptible to correction by traffic signal installation, and	WARRANT: 5	NUMBER:		
	(C) Vehicle and/or pedestrian not less than 80 percent of requirements in above warrants, and				
	(D) Will progressive traffic flow be maintained if signal is installed.				
NO. 6 COMBINATION OF WARRANTS	TWO or more of above warrants satisfied to extent of 80 percent. (After adequate trial of other remedial measures)				

NOTES: ① Rural warrants applicable to those locations where 85 percentile speed on major street exceeds 40 miles per hour or intersection lies within built-up area of an isolated community having a population less than 10,000 people.

② The direction of higher volume on the minor street may be on one approach during some hours and the opposite approach during other hours.

REMARKS: _____

FORM FOR SUBMISSION OF

CONDITION DIAGRAMS

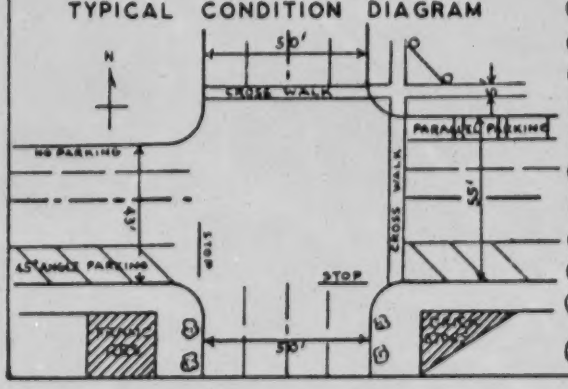
CONDITION DIAGRAM

NOTE:

DIAGRAM OF THE LOCATION UNDER STUDY TO BE DRAWN AS INDICATED IN ILLUSTRATION BELOW.

FOR REFERENCE ONLY

TYPICAL CONDITION DIAGRAM



CONDITION DIAGRAM SYMBOLS

①	Driveway
②	Pavement Markings
③	Traffic Signal
④	Utility Pole
⑤	Street Light
⑥	Hydrant
⑦	Tree
⑧	Hedge
⑨	Billboard
⑩	Building
⑪	Any Other

PEDESTRIAN VOLUME SUMMARY SHEET

Station No. _____ District _____ Date _____ Day _____

County _____ Hours _____

City _____ Weather _____

Intersection of _____

15 min. Period Beginning	Crossing on _____ leg _____ st			Crossing on _____ leg _____ st			Crossing on _____ leg _____ st			Crossing on _____ leg _____ st			Crossing on _____ leg _____ st			TOTAL
	SCHOOL AGE CHILDREN	OTHER	TOTAL	SCHOOL AGE CHILDREN	OTHER	TOTAL	SCHOOL AGE CHILDREN	OTHER	TOTAL	SCHOOL AGE CHILDREN	OTHER	TOTAL	SCHOOL AGE CHILDREN	OTHER	TOTAL	
:00																
:15																
:30																
:45																
:00																
:15																
:30																
:45																
:00																
:15																
:30																
:45																
:00																
:15																
:30																
:45																
Sub Total																
TOTAL																

59

MODULE 6

STUDY AID #6-5

MODULE 7

THE EMERGENCY SERVICES DATA SUBSYSTEM

GENERAL OBJECTIVES:

To acquire:

1. A knowledge of the data elements in the Emergency Services Data Subsystem and a knowledge of its uses.
2. A knowledge of the sources of Emergency Services Data, and means of collecting it.
3. An aquaintance with standard coding conventions recommended for Emergency Services Data.
4. An appreciation of the ways in which the collection, coding, and reporting of Emergency Services Data impact on one's own functions in the Traffic Records System.

MODULE 7

THE EMERGENCY SERVICES DATA SUBSYSTEM

CONTENT

7.1 Introduction
7.2 Emergency Services Data Required by Highway Safety Program
7.3 Uses of Emergency Data, by Safety Program Area
7.4 Sources and Means of Collecting Emergency Services Data
7.5 Problem-Solving/Discussion Period

REFERENCE

Design Manual for State Traffic Records Systems, Vol. II, Section 5

SUGGESTED STUDY APPROACH

1. Familiarize yourself with the Study Guide material for Module 7 (which follows). Read especially the descriptive portion at the beginning of Vol. II, Section 5.

2. Make a note of any questions you have about what you read, and bring these questions up during the Module 7 presentation.

CRITICAL DATA ELEMENTS REQUIRED FOR THE EMERGENCY SERVICES DATA SUBSYSTEM

1. EMERGENCY SERVICE ORGANIZATION DATA
   - Name
   - Address
   - Type
   - Service provided

2. EMERGENCY MEDICAL SERVICES DATA
   - Organization name
   - EMS vehicle data
   - Special equipment capablities
   - Driver data
   - Hours of EMS unit operation
   - Number of Doctors on staff
   - Number and type of Nurses on staff
   - Training of other EMS personnel

3. HOSPITAL/MEDICAL CENTER EMERGENCY ROOM INVENTORY
   - Hospital/Medical Center name
   - Emergency room capabilities and hours of operation
   - Number of Doctors assigned/available
   - Number and type of Nurses

4. EMS OPERATIONS DATA
   - Organization name
   - Date
   - Time factors
   - Patient name
   - Services rendered
   - Accident Case Number

MODULE 8

THE TRAFFIC LAW ENFORCEMENT AND ADJUDICATION DATA SUBSYSTEM

GENERAL OBJECTIVES:

To acquire:

1. A knowledge of the data elements in the Traffic Law Enforcement and Adjudication Data Subsystem and a knowledge of its uses.
2. A knowledge of the sources of Traffic Law Enforcement and Adjudication Data and the means of collecting it.
3. An acquaintance with standard coding conventions recommended for Traffic Law Enforcement and Adjudication Data.
4. An appreciation of the ways in which the collection, coding and reporting of Traffic Law Enforcement and Adjudication Data impact on one's own functions in the Traffic Records System.

MODULE 8

THE TRAFFIC LAW ENFORCEMENT AND ADJUDICATION DATA SUBSYSTEM

CONTENT

8.1 Introduction
8.2 Traffic Law Enforcement and Adjudication Data Required by Highway Safety Program
8.3 Uses of Traffic Law Enforcement and Adjudication Data, by Safety Program Area
8.4 Sources and Means of Collecting Data
8.5 Coding Conventions
8.6 Illustrations of Data Requirements and Uses -- Guest Speaker from Law Enforcement Agency
8.7 Problem-Solving/Discussion Period

REFERENCE

Design Manual for State Traffic Records Systems, Vol. II, Section 6

SUGGESTED STUDY APPROACH

1. Familiarize yourself with the Study Guide material for Module 8 (which follows). Read especially the descriptive portion at the beginning of Vol. II, Section 6.

2. Make a note of all questions you may have about this material, and bring these up during the Module 8 presentation.

CRITICAL DATA ELEMENTS REQUIRED FOR THE TRAFFIC LAW ENFORCEMENT AND ADJUDICATION DATA SUBSYSTEM

1. CITATION DATA

- Number
- Location of Issuance
- Issuing Police Agency
- Status/Results of Adjudication

2. SELECTIVE COUNTER-MEASURES DATA

- Countermeasures Action Reference Number
- Countermeasures Method
- Special Program Identifier
- Roadway Location Identification
- Action Type
- Reason for Action
- Date Initiated/Terminated
- Time(s) of Application
- Agency Responsible for Action
- Citations Issued
- Date Citations Issued

3. CONVICTIONS DATA

- Citation Number, Date, Day of Week, Time, Location
- Driver Name, License number, Address, Date of Birth, Sex, State of License, License Type, Restrictions (all for out-of-state drivers)
- Compliance with License Restrictions
- Vehicle License Plate Number (VIN)
- State of Registration (for out-of-state vehicles)
- Issuing Officer Badge Number, Reason for Presence at scene of Violation
- Countermeasures Action Reference Number
- Bond Data
- Original Citation Charge
- Charge Tried on, Charge Convicted of
- Reason for Conviction on Lesser Charge
- Date of First Appearance, Trial, Conviction

3. CONVICTIONS DATA (cont'd)

- Sentence fine, Term, Modifier, Special Order by Court
- Date Conviction reported by Court
- Judge Presiding
- Crash Case Number (if applicable)

4. NON-CONVICTIONS DATA

- Citation Number
- Time of Issuance
- Roadway Location
- Issuing Officer Badge Number
- Reason for Officer Presence at Scene of Violation
- Countermeasures Action Reference Number

4. NON-CONVICTIONS DATA (cont'd)

- Bond Data
- Original Citation Charge
- Charge Prosecuted
- Reason for Dropping Charge/Non-Conviction
- Date of First Appearance, Date of Trial, Date of Disposition of Charge Reported
- Judge Presiding

CRASHES/VIOLATIONS/CONVICTIONS BEFORE AND AFTER COUNTERMEASURE ACTIONS

DATE PREPARED: XX/XX/XX COUNTY OF XXXXXXXXX MUNICIPALITY OF XXXXXXXXX PERIOD XX/XX/XX - XX/XX/XX PAGE XXX

SELECTIVE COUNTERMEASURE ACTION	PRIOR TO IMPLEMENTATION CRASHES	VIOLATIONS	CONVICTIONS	FOLLOWING IMPLEMENTATION CRASHES	VIOLATIONS	CONVICTIONS	DURING CURRENT RPTG PERIOD CRASHES	VIOLATIONS	CONVICTIONS
STEP									
ASAP									
VEH. INSPECTION									

Hypothetical TRS Report showing number of crashes, violations, convictions before and after implementation of selective countermeasure actions.

Hypothetical TRS Report showing percentage of convictions by violation type and age of violators

TRAFFIC CONVICTIONS IN % BY AGE OF VIOLATORS & VIOLATION TYPE

DATE PREPARED PERIOD: XX/XX/XX - XX/XX/XX PAGE XXX

TYPE OF VIOLATION	TOTAL NO.	UNDER 16	16-18	18-20	20-22	22-24	24-26	26-30	30-35	35-40....	OVER 80
CRASH	XXXXXX	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X
DEFECTV EQMT	XXXXXX										
DRV W INTOX	XXXXXX										
DISABILITY	XXXXXX										
EQMT MISUSE	XXXXXX										
IMPROP LANE	XXXXXX										
PASSING	XXXXXX										
RECKLESS	XXXXXX										
REPEAT VIOL	XXXXXX										
SIGNS & CONTROL DEV	XXXXXX										
SIGNAL INTENT	XXXXXX										
SPEED	XXXXXX										
TURNS	XXXXXX										
WRONG WAY DIR	XXXXXX										

TRAFFIC VIOLATION CONVICTIONS BY TYPE OF VIOLATION

DATE PREPARED: XX/XX/XX PERIOD: XX/XX/XX - XX/XX/XX PAGE XXX

COURT XXXXXXXXXXXXXXXXX

TYPE OF VIOLATION	TOT NO OF CONVIC	NO OF RST IN FINS	CNV FINE %	CONVICTION FINES HI AVG NBR $	LO NBR	DAYS % SUSP	DRIVING HI AVG NBR DAYS	SUSP LO NBR	BOTH FINE & SUSP	COURT REVOCATION	CNV WITH NO. FIN/SUS/REV
CRASH	XXXXXX	XXXXXXX	XX.XX	XXXX XXX.	XXXX	XX.X	XXX XXX	XXX	XX.X	XX.XX	XX.X
DEFECTV EQMT	XXXXXX										
DRIV W INTOS	XXXXXX										
DISABILITY	XXXXXX										
EQMT MISUSE	XXXXXX										
IMPROP LANE	XXXXXX										
PASSING	XXXXXX										
RECKLESS	XXXXXX										
REPEAT VIOL	XXXXXX										
SIGNS & CONTROL DEV	XXXXXX										
SIGNAL INTENT	XXXXXX										
SPEED	XXXXXX										
TURNS	XXXXXX										
WRONG WY DIR	XXXXXX										

Hypothetical TRS Report showing number of traffic violation convictions by type of violation

TRAFFIC CONVICTIONS BY CLASS OF LICENSE & VIOLATION TYPE

DATE PREPARED: XX/XX/XX

PERIOD: XX/XX/XX PAGE XXX

| TYPE OF VIOLATION | TOTAL NUMBER | CLASS OF LICENSE - - -

TRAFFIC CITATIONS AND RESULTANT CONVICTIONS

DATE PREPARED: XX/XX/XX

PERIOD: XX/XX/XX - XX/XX/XX

TYPE OF VIOLATN	CITATIONS TOTAL NO	INSTATE #	INSTATE %	OUT OF STATE #	OUT OF STATE %	CONVICTED AS CITED TOTAL #	INSTATE #	INSTATE %	OUTST #	OUTST %	CONVICTED-CITATN CHANGE
CRASH	XXXXXX	XXXXXX	XX.X	XXXXXX	XX.X	XXXXXX	XXXXXX	XX.X	XXXXXX	XX.X	XXXXXX
DEFECTV EQMT	XXXXXX										
DRIV W INTOX	XXXXXX										
DISABILITY	XXXXXX										
EQMT MISUSE	XXXXXX										
IMPROP LANE	XXXXXX										
PASSING	XXXXXX										
RECKLESS	XXXXXX										
REPEAT VIOL	XXXXXX										
SIGNS & CONTROL DEV	XXXXXX										
SIGNAL INTENT	XXXXXX										
SPEED	XXXXXX										
TURNS	XXXXXX										
WRONG WY DIR	XXXXXX										

Hypothetical TRS Report showing number of citations and convictions by type of traffic violation

Hypothetical TRS Report showing changes in traffic violations between citation and conviction

CHANGES IN VIOLATIONS WHEN CITED & CONVICTED

DATE PREPARED: XX/XX/XX PERIOD: XX/XX/XX - XX/XX/XX PAGE XXX

COURT DISTRICT XXXXXXXXXXXXXXX

TYPE OF VIOLATN CHANGED - FROM	CRASH	DEFECTV EQMT	DRIV W INTOX	DIS-ABILITY	EQMT MISUSE	IMPROP LANE	PASS-ING	RECK-LESS	REPEAT VIOL	SIGNS & CONTROL DEV	SIGNAL INTENT	SPEED	TURNS
CRASH	XXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
DEFECTV EQMT	XXXXXX												
DRIV W INTOX	XXXXXX												
DISABILITY	XXXXXX												
EQMT MISUSE	XXXXXX												
IMPROP LANE	XXXXXX												
PASSING	XXXXXX												
RECKLESS	XXXXXX												
REPEAT VIOL	XXXXXX												
SIGNS & CONTROL DEV	XXXXXX												
SIGNAL INTENT	XXXXXX												
SPEED	XXXXXX												
TURNS	XXXXXX												

MODULE 8

TIMELAG BETWEEN OFFENSE AND CONVICTION IN COURT

DATE PREPARED: XX/XX/XX

PERIOD: XX/XX/XX - XX/XX/XX

COURT XXXXXXXXXXXXXXXX

TYPE OF VIOLATION	TOT NO OF CONVICTIONS	HEARINGS OF OFFENSES	CONVICT %	TIME LAG OF OFFENSE TO CONVICTION (WEEKS) F 2 3 4 5 6 7-8 9-10 11-12 13-26 ...
		XXXXXX	XX.X	XX XX XX XX XX XX XX
CRASH	XXXXXX			
DEFECTV EQMT	XXXXXX			
DRIV W INTOX	XXXXXX			
DISABILITY	XXXXXX			
EQMT MISUSE	XXXXXX			
IMPROP LANE	XXXXXX			
PASSING	XXXXXX			
RECKLESS	XXXXXX			
REPEAT VIOL	XXXXXX			
SIGNS & CONTROL DEV	XXXXXX			
SIGNAL INTENT	XXXXXX			
SPEED	XXXXXX			
TURNS	XXXXXX			
WRONG WY DIR	XXXXXX			

showing time lag between offense and conviction for various traffic violations

(STUDY AID #8-9)

75/76

MODULE 9

THE EDUCATIONAL SERVICES DATA SUBSYSTEM

GENERAL OBJECTIVES:

To acquire:

1. A knowledge of the data elements in the Educational Services Data Subsystem and a knowledge of its uses.
2. A knowledge of the sources of Educational Services Data and means of collecting it.
3. An acquaintance with standard coding conventions recommended for Educational Services Data.
4. An appreciation of the ways in which the collection, coding, and reporting of Educational Services Data impact on one's own functions in the Traffic Records System.

MODULE 9

THE EDUCATIONAL SERVICES DATA SUBSYSTEM

CONTENT

9.1 Introduction
9.2 Educational Services Data Required by Highway Safety Program
9.3 Uses of Educational Services Data, by Safety Program Area
9.4 Sources and Means of Collecting Educational Services Data
9.5 Coding Conventions
9.6 Problem-Solving/Discussion Period

REFERENCE

Design Manual for State Traffic Records Systems, Vol. II, Section 7

SUGGESTED STUDY APPROACH

1. Familiarize yourself with the Study Guide material for Module 9 before the presentation of Module 9. Give special attention to the descriptive material at the beginning of Vol. II, Section 7.

2. Note down any questions you may have about what you read, and bring them up during the Module 9 presentation.

CRITICAL DATA ELEMENTS REQUIRED FOR THE EDUCATIONAL SERVICES DATA SUBSYSTEM

1. EDUCATIONAL SERVICES ORGANIZATION IDENTIFICATION

- Name
- Address
- Type
- Services provided

2. EDUCATIONAL INSTITUTIONS PROGRAMS

- Name
- Size of Staff
- School run or contracted
- High School Driver Education (HSDE) Course
  - -- Total hours and hour breakdown (class, simulator, practice)
  - -- Type of equipment/ vehicles used
  - -- Vehicle identification and descriptors
  - -- Vehicle practice areas and times
  - -- Schedule

2. EDUCATIONAL INSTITUTIONS PROGRAMS (Cont'd)

  - -- Enrollment
  - -- Cost (total and average per pupil) and method of financing
- Primary School Pedestrian Education (PSPE) Course
  - -- Total hours
  - -- Schedule
  - -- Techniques
- Adult Education Program (AEP)
  - -- Total Hours and Hour Breakdown
  - -- Type of Equipment/ Vehicles used
  - -- Vehicle Practice areas and times
  - -- Schedule
  - -- Enrollment
  - -- Cost (total and average per student) and method of financing

3. COMMERCIAL COMPANIES PROGRAMS

- Name
- License Number
- Types of services
- Private Driver Education (PDE) Course
  - -- Schedule
  - -- Total Hours and Hour Breakdown
  - -- Vehicle practice areas and times
  - -- Vehicle/equipment used (identification and description)
  - -- Driver instructor name and license number

4. STATE REMEDIAL SERVICES PROGRAMS

- Name
- Number of Training Officers
- Number and types of remedial program type at each location
- Frequency of scheduling of each program type at each Location

4. STATE REMEDIAL SERVICES PROGRAM (Cont'd)

- For each type of program offered by State:
  - -- Schedule
  - -- Content emphasis
  - -- Classroom hours
  - -- Special training methods
  - -- Tests required
  - -- Recommended enrollment
  - -- Recommended maximum enrollment
  - -- Cost of conducting course

MODULE 10

THE SAFETY PROGRAM MANAGEMENT DATA SUBSYSTEM

GENERAL OBJECTIVES:

To acquire:

1. A knowledge of the data elements in the Safety Program Management Data Subsystem and a knowledge of its uses.

2. A knowledge of the sources of Safety Program Management Data and means of generating it.

3. An acquaintance with standard coding conventions recommended for Safety Program Management data.

4. An appreciation of the ways in which the generation, coding, and reporting of Safety Program Mangement data impact on your own functions in the Traffic Records System.

MODULE 10

THE SAFETY PROGRAM MANAGEMENT DATA SUBSYSTEM

CONTENT

10.1 Introduction
10.2 Safety Program Management Data Required by Safety Program
10.3 Uses of Safety Program Management Data
10.4 Sources and Means of Generating Data
10.5 Coding Conventions
10.6 Problem-Solving/Discussion Period

REFERENCE

Design Manual for State Traffic Records Systems, Vol. II, Section 8

SUGGESTED STUDY APPROACH

1. Familiarize yourself with the Study Guide material for Module 10 (which follows) before the Module 10 presentation. Give special attention to the descriptive material at the beginning of Vol. II, Section 8.

2. As you examine the listing of data elements in Study Aid #10-2, and the discussion of the Safety Program Management Data file in Vol. II, Section 8, try to think of your own examples of uses (e.g., reports) to which some of the data summaries might be put. Note down any of these that appear to have an important bearing on the management of the Highway Safety Program in your State.

3. Note also any questions you have about any of the Module 10 Study Guide material for discussion in class.

CRITICAL DATA ELEMENTS REQUIRED FOR THE SAFETY PROGRAM MANAGEMENT DATA SUBSYSTEM

OPERATIONAL AREA SUMMARIES

- Driver data summary
- Vehicle data summary
- Roadway data summary
- Emergency Services data summary
- Traffic Law Enforcement data summary
- Educational Services data summary

CRASH INCIDENCE SUMMARY

- Numbers of fatal, injury, and property damage crashes
- Number of fatalities and injuries
- Total property damage

CRASH FACTORS SUMMARIES

- Crash vs. driver factors
- Crash vs. vehicle factors
- Crash vs. pedestrian factors
- Crash vs. roadway factors

MODULE 11

EVALUATIVE RESEARCH IN THE HIGHWAY SAFETY PROGRAM

GENERAL OBJECTIVES:

To acquire:

1. An understanding of certain terms and concepts functional to evaluative research:
   - evaluation
   - evaluative research
   - values; goals
   - independent, dependent variables
   - value assumption; validity assumption
2. A recognition of immediate and ultimate objectives in a Highway Safety Program.
3. A knowledge of several categories of criteria for program evaluation in the field of Traffic Safety.
4. A knowledge of the basic model for an evaluative research design, and several variations as they relate to the Highway Safety Program.
5. An understanding of the concepts of reliability and validity in the interpretation of data in Highway Safety Program evaluation.

MODULE 11

EVALUATIVE RESEARCH IN THE HIGHWAY SAFETY PROGRAM

CONTENT

11.1 Introduction
11.2 Fundamental Concepts of Evaluation
11.3 Defining Program Objectives
11.4 Types of Evaluation
11.5 Design of Analyses
11.6 Interpretation of Findings

REFERENCE

Design Manual for State Traffic Records Systems, Vols. I and II

SUGGESTED STUDY APPROACH

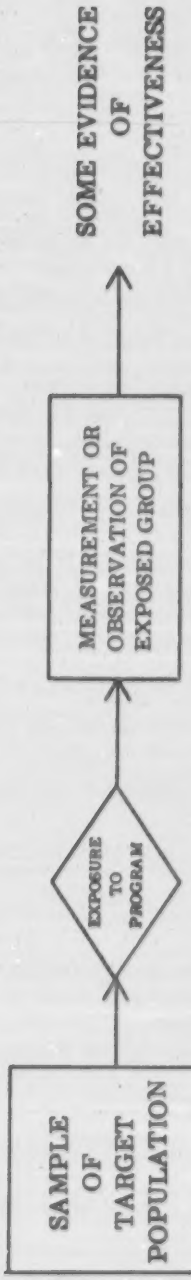
Familiarize yourself with all Study Guide material for Module 11 (which follows). Read with special care the material on reliability and validity in Study Aid #11-4, and consider these concepts as applied to the Highway Safety Program.

STEPS IN THE PROGRAM EVALUATION CYCLE

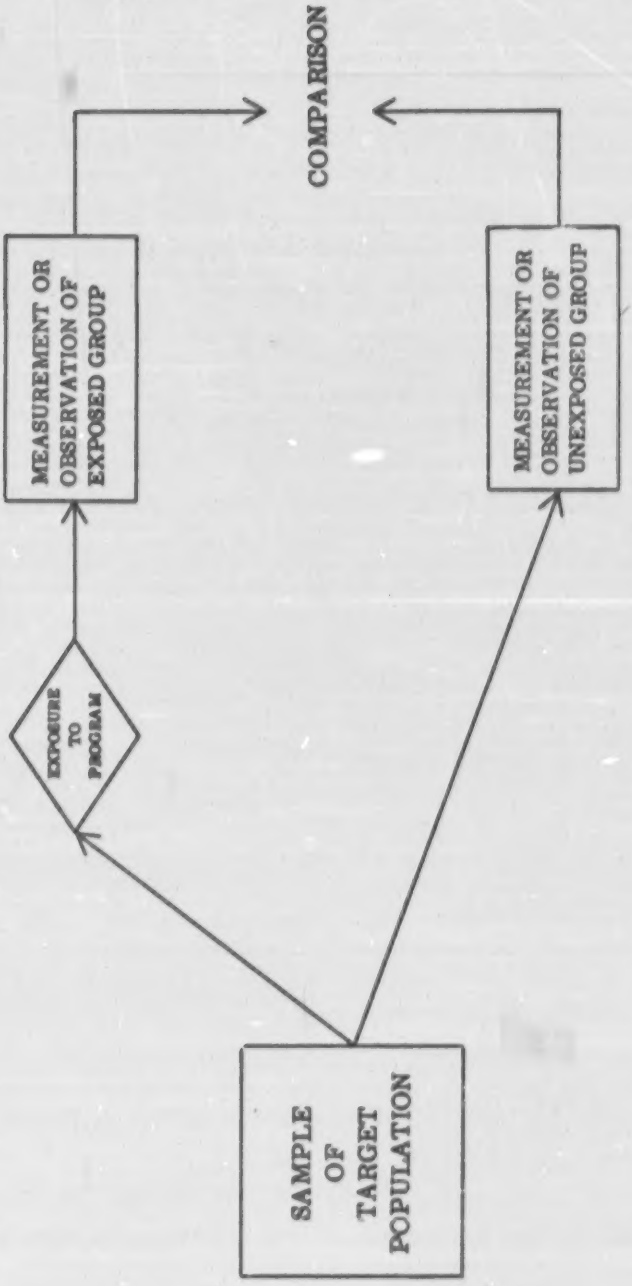
CLASSIC DESIGN FOR RESEARCH PROJECT

SAMPLE OF TARGET POPULATION
DIVISION INTO TWO GROUPS
MEASUREMENT OR OBSERVATION OF EXPERIMENTAL GROUP
EXPOSURE TO PROGRAM
MEASUREMENT OR OBSERVATION OF EXPERIMENTAL GROUP
MEASUREMENT OR OBSERVATION OF CONTROL GROUP
MEASUREMENT OR OBSERVATION OF CONTROL GROUP
COMPARISON MADE OF RESULTS WITH TWO GROUPS; DIFFERENCES NOTED

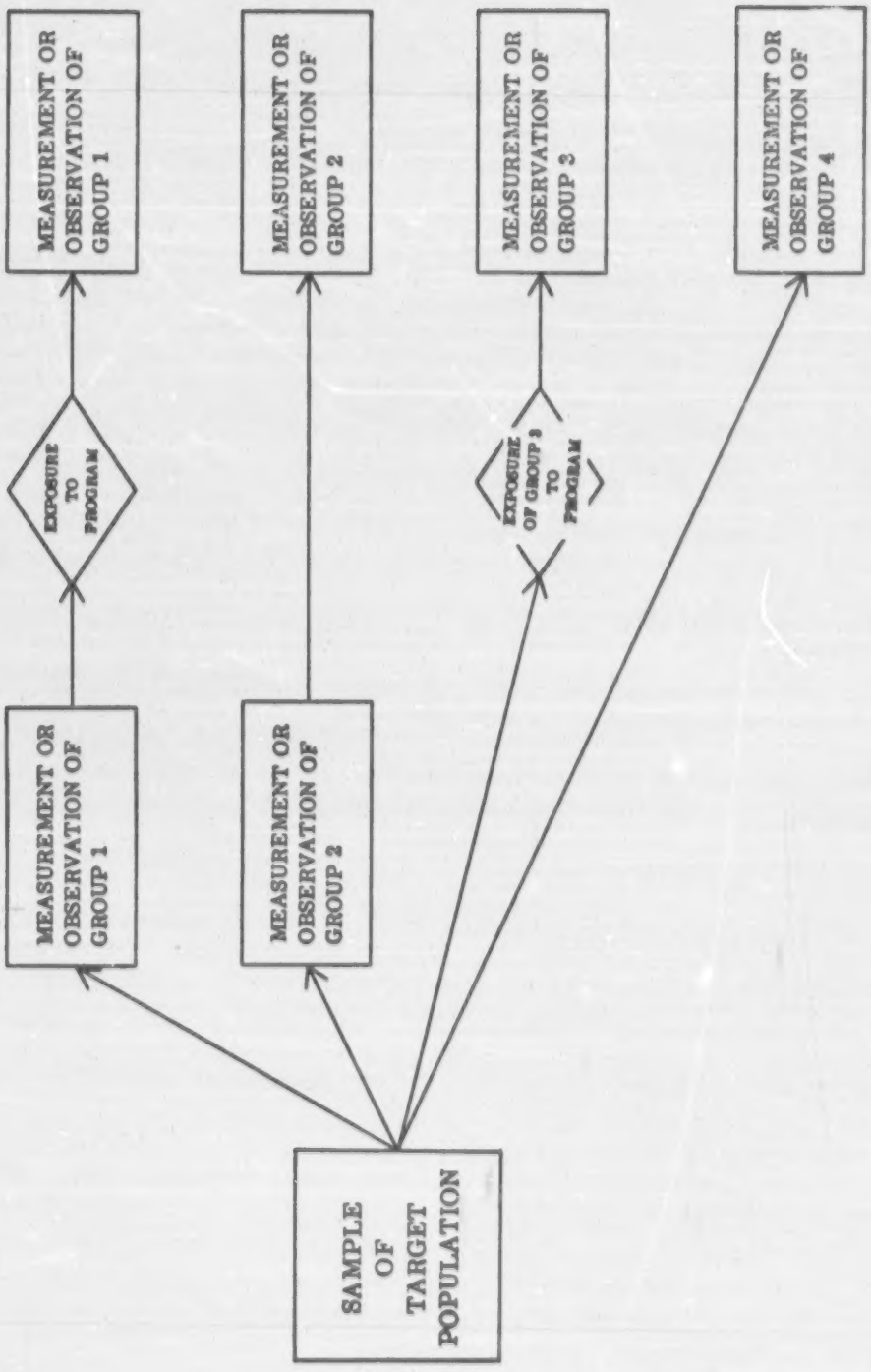
ONE-SHOT CASE STUDY


SAMPLE OF TARGET POPULATION
EXPOSURE TO PROGRAM
MEASUREMENT OR OBSERVATION OF EXPOSED GROUP
SOME EVIDENCE OF EFFECTIVENESS

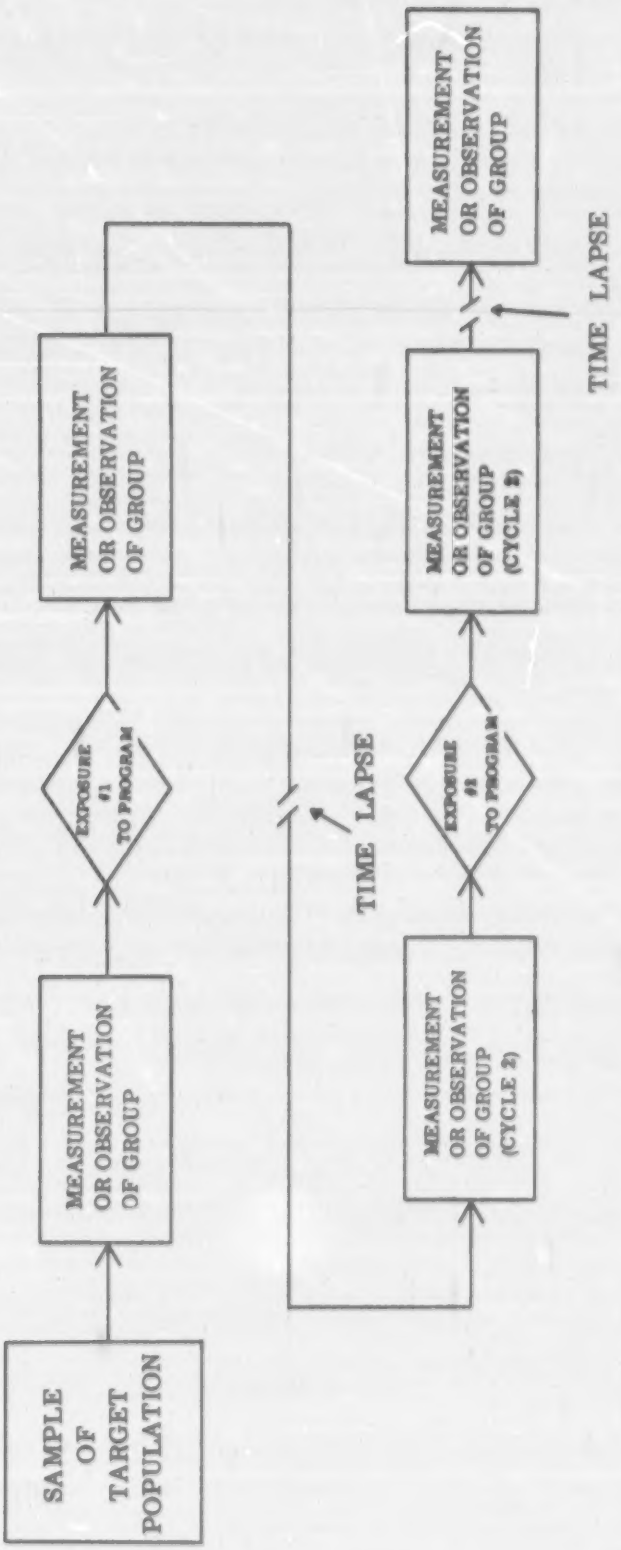
STATIC GROUP COMPARISON


COMPARISON
MEASUREMENT OR OBSERVATION OF EXPOSED GROUP
MEASUREMENT OR OBSERVATION OF UNEXPOSED GROUP
EXPOSURE TO PROGRAM
SAMPLE OF TARGET POPULATION

FOUR-GROUP DESIGN


SAMPLE OF TARGET POPULATION
MEASUREMENT OR OBSERVATION OF GROUP 1
MEASUREMENT OR OBSERVATION OF GROUP 2
EXPOSURE TO PROGRAM
EXPOSURE OF GROUP 3 TO PROGRAM
MEASUREMENT OR OBSERVATION OF GROUP 1
MEASUREMENT OR OBSERVATION OF GROUP 2
MEASUREMENT OR OBSERVATION OF GROUP 3
MEASUREMENT OR OBSERVATION OF GROUP 4

LONGITUDINAL STUDY DESIGN


SAMPLE OF TARGET POPULATION
MEASUREMENT OR OBSERVATION OF GROUP
EXPOSURE #1 TO PROGRAM
MEASUREMENT OR OBSERVATION OF GROUP
TIME LAPSE
MEASUREMENT OR OBSERVATION OF GROUP (CYCLE 2)
EXPOSURE #2 TO PROGRAM
MEASUREMENT OR OBSERVATION OF GROUP (CYCLE 2)
TIME LAPSE

OUTLINE OF CONCEPTS RELATING TO RELIABILITY AND VALIDITY

A. Definitions

1. Reliability - The degree to which a given measure will give consistent results upon repeated application.

2. Validity - The significance of an evaluative measure in relation to the purpose for which it was designed.

B. Sources of Unreliability in Programs

1. Subject - Persons whose performance is being measured vary in mood, level of fatigue, degree of motivation, etc.

2. Observer - Factors operating with respect to subject (above) may have amplified effect of influencing both subject's reactions and observer's interpretations.

3. Situation - Conditions under which test or measurement is administered may affect results in a way that will not be the case for the whole population when the program is implemented.

4. Instrument - Characteristics of the test, interview, questionnaire, or whatever is being used to collect data for evaluation, may affect the results unpredictably.

5. Processing - Coding or mechanical errors in the gathering or manipulation of data can lead to unreliability.

C. Types of Validity

1. Face validity - Validity that is on the surface, or appears "obvious"

2. Correlational validity - Validity backed by two different measures which produce similar results, or results that correlate.

3. Predictive validity - Degree of validity with which one can make predictions about future events on the basis of present indicators.

D. Areas of Invalidity

1. Propositional - Incorrect theoretical assumptions may be made which lead to "biased" objectives.

2. Measurement Instrument - Measures may be made that are invalid because of the measurement instrument itself.

3. Sampling - Sample chosen for program evaluation may not be truly representative of population for which program is designed.

4. Observer/evaluator - Interviewer or observer or whoever, at the time of data collection, must exercise judgment in translating observations into data, may introduce consistent bias.

5. Subject - Validity may be decreased by irrelevant information or deliberate misinformation from subjects in study.

6. Administration - Errors may be introduced into any program as a result of conditions under which data is collected.

7. Analysis - Those who analyze and interpret data being collected - analysts - have crucial responsibility, in any program, in determining whether results are to be valid. They may introduce bias in many ways including the following:

   - deliberate bias to prove a point of view
   - personal commitment to a program that may be invalid (with unintentional bias)
   - inappropriate attempts to generalize results of a given program to other programs.

MODULE 12

RECAPITUALTION AND CONCLUSION

PURPOSE:

To review the more important points made in the course, and to put all parts of the course in perspective.

GENERAL OBJECTIVE:

To acquire an appreciation of your own role in an integrated traffic records system, and in the Highway Safety Program in general.

OUTLINE OF MAIN TOPICS IN COURSE

TO BE USED IN CONNECTION WITH RECAPITUALTION AND DISCUSSION

In the course of Module 12, the instructor will recapitulate the content of the course, following generally the outline in the left-hand column below.

You will be asked to make notes in the right-hand column, opposite the items to which your notes pertain.

You should note any questions you may have about any points discussed, or any of the examples given, and in particular you should note questions you have about the implications a given point may have for your job or your Program-related responsibilities.

MAIN TOPICS	NOTES
Module 1. Traffic Records in Relation to Highway Safety Program	
A. Purpose of Highway Safety Program: "to reduce traffic crashes, and the deaths, injuries, and property damage resulting from them".	
B. Program Standard Areas include:	
• Program Administration and Evaluation, which includes Traffic Records Systems	
• Traffic Laws and Regulations	
• Vehicle Requirements	
• Traffic Safety Education	
• Driver Licensing	
• Police Traffic Services	
• Traffic Courts and Adjudication Systems	
• Emergency Medical Services	

MAIN TOPICS	NOTES
C. Traffic Records System: Purpose is to assure that appropriate data on traffic crashes, drivers, motor vehicles, roadways and Program functions are available to State and local planners and operators of motor vehicle transportation systems. D. People who Operate Traffic Records System • Development functions • Coordination functions • Planning functions Module 2. Concepts of an Integrated Traffic Records System A. Content of Traffic Records • Entities - Driver - Vehicle - Roadway - Pedestrian • Events - Crashes (fatalities, injuries, property damage) - Non-crash traffic violations • Countermeasure data - Emergency Medical Services	

MAIN TOPICS	NOTES
- Law Enforcement and Adjudication - Educational Services B. User Requirements for Highway Traffic Safety Data: Examples of needs or uses of traffic safety data by State and National agencies and various private agencies. C. Organization of an Integrated Traffic Records System • Objectives • Characteristics of Integrated System • Extent of Automation and Centralization Required • Data Base Subsystems in an Integrated TRS • Functions of a Traffic Records Processing System • System Support Functions <u>Modules 3-10: Explanation of Format</u> A. General format followed in each module that deals with a separate sub-system was discussion of topics as follows: • Data required by Highway Safety Program for a given sub-system • Uses of these Data relating to each Program Area • Sources and Means of Collecting Data	

MAIN TOPICS	NOTES
• Coding Conventions • Specific illustrations of requirements and uses given by guest speakers B. There were eight modules corresponding to the eight subsystems recommended for an integrated traffic records system: • Module 3 - Crash Data Subsystem • Module 4 - Driver Data Subsystem • Module 5 - Vehicle Data Subsystem • Module 6 - Roadway Data Subsystem • Module 7 - Emergency Services Subsystem • Module 8 - Traffic Law Enforcement and Adjudication Data Subsystem • Module 9 - Educational Services Subsystem • Module 10 - Safety Program Management Data Subsystem <u>Module 11. Evaluative Research in the Highway Safety Program</u> A. Fundamental Concepts of Evaluation • evaluation • evaluative research • values; goals	

MAIN TOPICS	NOTES
• independent, dependent variables	
• value assumption; validity assumption	
B. Defining Program goals and objectives	
• Ultimate objectives	
• Intermediate objectives	
• Immediate objectives	
C. Five categories of criteria for evaluation:	
• effort	
• performance	
• adequacy of performance	
• efficiency	
• process	
D. Steps in Design of Analyses	
• Target population; samples	
• Classic Research design and four variations	
• Three conditions of evaluative research	
E. Interpretation of Findings	
• Reliability and validity	
• Sources of Unreliability	
• Types of Validity	
• Areas of Invalidity	

TRAFFIC RECORDS COURSE

CLASS PROBLEM NO. 1

1. Statement of Problem

The organizational environment pertaining to highway safety programs and the supporting traffic records systems for two hypothetical states are described below. Based on these descriptions, the material presented in Module 2, and the study aid material pertaining to Module 2, you will be asked to answer a number of questions relating to the organization and the responsibilities for establishment and utilization of integrated traffic records systems in these hypothetical states.

2. Description of State Environments

The organizations involved and their responsibilities within the States' highway safety programs are indicated in Tables 1 and 2 (attached) for States 1 and 2, respectively. Participation is indicated for State, County, and Municipal level government agencies.

2.1 State 1

At the State level, a significant number of highway safety program activities are located within one department -- the Department of Law and Public Safety -- and utilize a single integrated traffic/criminal justice records system. Of other participating Departments, only one -- the Department of Highways -- maintains its own computer system in support of traffic safety programs. Only County A and City A utilize computer systems in support of their participation in the traffic safety program. Other counties and incoporated municipalities utilize manual records to support their activities.

With the exception of County A and City A, major emphasis in traffic safety analysis is reserved to State-level agencies.

2.2 State 2

At the State level, Traffic Safety Program activities are distributed among various departments each of which is supported by its own records system. There is a significant level of safety program activities conducted by counties and two cities, with all but two counties utilizing extensive computer systems support.

3. Questions

Both States are planning the implementation of an integrated traffic records system, utilizing the design guidelines provided by the "Design Manual for Traffic Records Systems." Their major concerns in the initial stages of system planning are (1) the determination of specific organizational interest and responsibility for the various

data subsystems and their component files, and (2) the determination of the most appropriate records system configuration to support the needs of State, county, and municipal agencies in their roles in the highways safety program. The roles as identified in Tables 1 and 2 will be continued within the framework of the integrated system.

Examine carefully the organizations and related Program responsibilities for States 1 and 2 shown in Tables 1 and 2. Taking into account that information, and what you have learned in Module 2, please answer the following questions.

3.1 Question 1

In Answer Form 1 (which follows), the integrated traffic records system data file structure is listed in the left-hand column. Indicate in the appropriate columns for each State (a) the State government agencies that would be interested in the various data files, (b) the probable nature of the interest in each file, and (c) the Department or agency that would be the most likely candidate for maintenance of each of the data subsystems. Use the following two-character codes to indicate Department/Agency and nature of interest.

Department/Agency Codes

PS - Department of (Law and) Public Safety

DH - Department of Highways

DT - Department of Transportation

DJ - Department of Justice

PH - Department of (Public) Health

DE - Department of Education

GS - Office of Government Services

MV - Motor Vehicles Division (Bureau)

DD - Driver Licensing Division (Bureau)

SP - State Police Division

OS - Office of Highway (Transportation) Safety

HD - Highways Division

PE - (Highway) Planning and Construction Division

OP - (Highway) Operations

JD - Judiciary (Planning and Administration) Division

HS - Health (or Emergency Medical) Services

CP - Division of Curriculum (Planning)

DL - Division of Licensing (Driver Schools)

CD - Communications and Data Processing Division

Nature of Interest Codes

EO - Data Source (Entry) Only

RC - Data Retrieval Only

ER - Data Entry and Retrieval

3.2 Question 2

Indicate in Answer Form 2 (below) whether a centralized or distributed traffic records system configuration would appear most appropriate in States 1 and 2. Use codes C or D for Centralized and Distributed, respectively. Next to this indicate the primary factors in this decision, using the following code:

Factors Codes

DC - Relative concentration of safety program activities in one State department

DD - Distribution of safety program activities among various State departments

CR - Relatively strong orientation toward traffic records in limited number of dedicated computer system

DR - Relatively strong orientation toward traffic records in various dedicated computer system

SD - Relative orientation toward safety program actions at State level

LD - Relative orientation toward safety program actions at local and State levels

HA - Heavy utilization of automated records

MA - Minimal utilization of automated records

ANSWER FORM 2:

State	Probable Configuration	Decision Factors
1	_____	_____
2	_____	_____

3.3 Question 3

Indicate in Answer Form 3 the degree to which linkage to, and/or data processing support to, local, county or municipal government agencies would be required to support these agencies in their assigned roles in the traffic safety program. Use the following codes to indicate the level of support you believe to be required:

E - Extensive

M - Moderate

L - Limited

ANSWER FORM 3:

State	Communications Linkage	Data Processing Support
1	_____	_____
2	_____	_____

ANSWER FORM 1:

Data Subsystem/File	State 1			State 2			6
	Interested Agency	Nature of Interest	Subsystem Maintenance	Interested Agency	Nature of Interest	Subsystem Maintenance	
Driver Data							
Driver/Owner Directory							
Driver History							
Financial Responsibility							
Vehicle Data							
Vehicle Identif. Dir.							
Registration Data							
Vehicle History							
Stolen, Abandoned, and Lost Property Data							
Titling and Financial Data							
Roadway Environment							
Roadway Location Dir.							
Basic Roadway Characteristics							
Intersection Characteristics							
Bridge Structure Invent.							
Roadway Location History							
Accident Data							
Accident Case Dir.							
Basic Case Data							
Fatalities Analysis Supplement							
In-Depth Investigation Supplement							
Emergency Services							
Emergency Organization Directory							
Emergency Medical Services Inventory							
Hospital/Medical Center Emerg. Room Inventory							
EMS Operations							
Traffic Law Enforcement and Adjudication							
Enforcement and Adjudication Dir.							
Selective Countermeasures Actions							
Convictions Data							
Non-Convictions Data							
Education Services							
Educational Services Directory							
Educat. Instit. Inv.							
Commercial Companies Inventory							
State Remedial Services Inventory							
Safety Program Management							
Operations Summary							
Accident Incidence Summary							
Accident Factors							

Table 1 - Organization and Highway Safety Program Responsibilities of State 1

Organization/Agency	Role in State Highway Safety Program	Current Traffic Records Support Activities
STATE DEPT. OF LAW AND PUBLIC SAFETY		
Motor Vehicles Division		
Commissioner of Motor Vehicles	Governor's Representative for Highway Safety	
Office of Highway Safety	Planning, analysis, and administration of highway safety program	Operation of manual summary data records system
Motor Vehicles Bureau	Vehicle registration, title registration, operation of vehicle inspection stations, licensing of commercial emergency service operators	Maintenance of vehicle registration, titling, and emergency vehicle licensing records on Department integrated traffic/criminal justice records computer system
Driver Licensing Bureau	Driver licensing, driver control, operation of driver improvement classes, licensing of commercial driver training schools	Maintenance of driver licensing and violation history and commercial school licensing data records on Department computer system
State Police Division		
Traffic Bureau	Organization and maintenance of routine and selective enforcement patrols, routine and special traffic accident investigations, coordination of local traffic law enforcement operations	Maintenance of automated records on traffic enforcement operations and accident incidence on Department computer system
Judiciary Division	Planning and administration of court system, coordination of local court operations, review of laws and court administration	Maintenance of automated adjudication records on Department computer system
STATE DEPT. OF HIGHWAYS		
Division of Planning and Construction	Planning and construction of interstate and state highways, coordination of local highway planning and construction	Maintenance of automated highway inventory records on Department computer system
Division of Operations	Maintenance of interstate and state highways, traffic engineering, identification of high accident locations	Automated maintenance records on Department computer system. Analysis of high accident locations on Department computer system using data tapes provided by State Police
STATE DEPT. OF PUBLIC HEALTH		
Division of Comprehensive Health Services	Planning and administration of statewide emergency medical services system, coordination of local EMS systems, licensing of private hospitals and commercial ambulance companies	Maintenance of automated inventory of EMS organizations on State OGS computer center system
STATE DEPT. OF EDUCATION		
Division of Curriculum Planning	Planning and administration of public school driver and pedestrian safety education programs, coordination of private school and adult safety education programs	Maintenance of records of students completing driver education programs on State OGS computer center system

Table 1 - Organization and Highway Safety Program Responsibilities of State 1 (cont'd)

Organization/Agency	Role in State Highway Safety Program	Current Traffic Records Support Activities
STATE OFFICE OF GOVERNMENT SERVICES (OGS)		
Communications and Data Processing Systems Division	Planning and implementation of communications network and/or data processing systems supporting operations of some State agencies and some local government agencies	Data processing support to Departments of Public Health and Education, communications links between County A and City and State data processing systems
COUNTIES		
County A (large populous area)		
Highway Department	Planning, construction, and maintenance of county roadways, coordination of planning of local incorporated municipalities, identification of high accident locations for county roads and local municipal streets	Maintenance of automated inventory of all highways, county roads, and municipal streets within county boundaries; Maintenance of automated records of accidents within county boundaries for high accident location analysis; both on County computer system
Police Department	Planning of local routine and selective enforcement patrols, traffic accident investigations	Automated inventory of police traffic operations on County computer system. Communications link to State Police and MVD records
Courts Division	Operation of County traffic court, coordination of municipal courts, evaluation of court system performance and requirement	Maintenance of criminal justice information/administrative adjudication system on (AAS) County computer system and communications link to MVD records
Public Health Department	Planning and administration of county-wide emergency medical services system	Automated inventory of all EMS organizations in county
Other Counties	Same as County A except no identification of high accident locations for municipal streets or AAS	Manual inventory records of county roads, accident locations, and Police traffic operations. Remote terminal to State Police and MVD records on integrated records system by County Police.
CITY		
MUNICIPALITIES		
City A (large urban area)		
Department of Public Works	Planning, construction, and maintenance of local thoroughfares, coordination with State Highway Department on interstates and state highways through city, traffic engineering	Automated inventory of all highways and streets within city boundaries and maintenance of city streets on Department computer system
Police Department	Planning and operation of routine and selective enforcement, accident investigation, and identification of high accident locations for all highways and streets within city boundaries	Automated inventory of traffic enforcement operations on Department computer system and communication links to State Police accident records and MVD vehicle registration and driver license records
Department of Correction	Operation of traffic courts and administrative adjudication system (AAS)	Maintenance of criminal justice information/administrative adjudication system on Department computer and communication links to State MVD records

Table 1 - Organization and Highway Safety Program Responsibilities of State 1 (cont'd)

Organization/Agency	Role in Highway Safety Program	Current Traffic Records Support Activities
Department of Health	Operation of municipal emergency medical services system	Automated inventory of EMS organizations and case record samples on computer system serving several health and welfare agencies
Other Incorporated Municipalities		
Departments of Public Works	Planning, construction, and maintenance of local streets, coordination with county highway departments	Manual inventory records of local roads and streets
Police Departments	Routine traffic law enforcement, traffic accident investigation, identification of high accident locations	Manual records of police traffic enforcement operations and local accidents
Courts	Adjudication of local traffic citations	None

Table 2 - Organization and Highway Safety Program Responsibilities of State 2

Organization/Agency	Role in Highway Safety Program	Current Traffic Records Support Activities
STATE DEPT. OF PUBLIC SAFETY		
Motor Vehicles Division		
Motor Vehicles Bureau	Vehicle registration, title registration, administration of state inspection program (independent service stations), licensing of emergency service operators	Maintenance of vehicle registration, titling and inspection data and emergency service operators licensing data records on Division computer system
Driver Licensing Bureau	Driver licensing, driver control, operation of driver improvement classes	Maintenance of driver licensing, violation and accident history records on Division computer system
State Police Division	Organization and maintenance of routine and selective enforcement patrols, routine traffic accident investigations, coordination of local traffic law enforcement	Maintenance of automated records on traffic enforcement operations and citations issued in Police Services Management Information System (independent computer system). Communication links to MVD and Department of Justice systems
STATE DEPT. OF TRANSPORTATION		
Secretary of Transportation	Governor's Representative for Highway Safety	
Office of Transportation Safety	Planning, analysis, and administration of highway (and other modes) safety programs. Identification of high accident locations	Maintenance of automated highway traffic accident records and summary data records (and for other modes) and automated high accident location analysis on Department computer system
Highways Division	Planning, construction, and maintenance of interstate and state highways, coordination with county highway departments, traffic engineering	Maintenance of automated highway inventory records and accident history records on Department computer system.
STATE DEPT. OF JUSTICE		
Planning and Administration Division	Planning and administration of state court system, coordination of local county court systems, review and evaluation of court system operations and state laws	Operation of automated Criminal Justice and Courts Management Data System on Department computer system. Communication links to local court systems and State Police system
STATE DEPT. OF HEALTH		
Division of Emergency Health Services	Planning and administration of statewide emergency medical services program, coordination of local, county, or city EMS systems, coordinated training program for EMS personnel, licensing of private hospitals and ambulance companies	Maintenance of automated inventory of EMS organizations, and EMS case record samples on Department computer system

Table 2 - Organization and Highway Safety Program Responsibilities of State 2

Organization/Agency	Role in Highway Safety Program	Current Traffic Records Support Activities
STATE DEPT. OF EDUCATION		
Division of Curriculum	Planning and administration of public school driver and pedestrian safety education programs, coordination of private and adult education school programs	Maintenance of automated inventory of school programs and students completing courses on Department computer system
Division of Licensing	Licensing of commercial driver training schools	Maintenance of inventory of commercial schools
COUNTIES		
All But Two Counties		
Highway Department	Planning, construction, and maintenance of county roads and local streets, coordination with State Highway Division, identification of high accident locations for all county roads and local streets	Maintenance of automated inventory of county roads and local streets, communications link to State DOT accident records, automated high accident location analysis on main county computer system
Police Department	Planning and execution of routine and selective enforcement actions and accident investigation on all highways, county roads and local streets in county	Automated records of traffic law enforcement actions and citations issued on main county computer system. Communication links to State Police and MVD records systems
Corrections Department	Operation of county traffic courts and administrative adjudication system, continuing review of courts schedule and performance	Automated criminal justice/administrative adjudication system on a second county computer system. Communication links to State Police and MVD records
Health Department	Planning and administration of County EMS system, coordination with State EMS authorities	Automated inventory of EMS organizations and selected case records on main county computer. Manual records of other cases
Other Two Counties	Same as above except that involvement with State highways is limited to routine enforcement patrol and accident investigation	All records are manually maintained and deal only with county responsibility. Only police have communication link to State Police and MVD records
Two Large Cities		
Department of Roads	Planning, construction, and maintenance of freeways and local streets, coordination with State Highway Division	Maintenance of automated inventory of all highways and streets within city boundaries, communications link to State DOT accident records, high accident location by automated plotting system on City computer system
Police Department	Planning and execution of routine and selective enforcement actions and accident investigations on all highways and local streets in City	Manual records of traffic law enforcement actions. Communications links to State Police and MVD records systems on Department computer system
Department of Corrections	Operation of city traffic courts and administrative adjudication system	Automated criminal justice/administrative adjudication system, records of all traffic related citations issued within City boundaries on Department computer system. Communication links to State Police and MVD records system
Department of Health	Planning and administration of City EMS System, coordination with State EMS authorities	Inventory of EMS organizations and case records on real-time EMS operations control computer system

TRAFFIC RECORDS COURSE

CLASS PROBLEM NO. 2

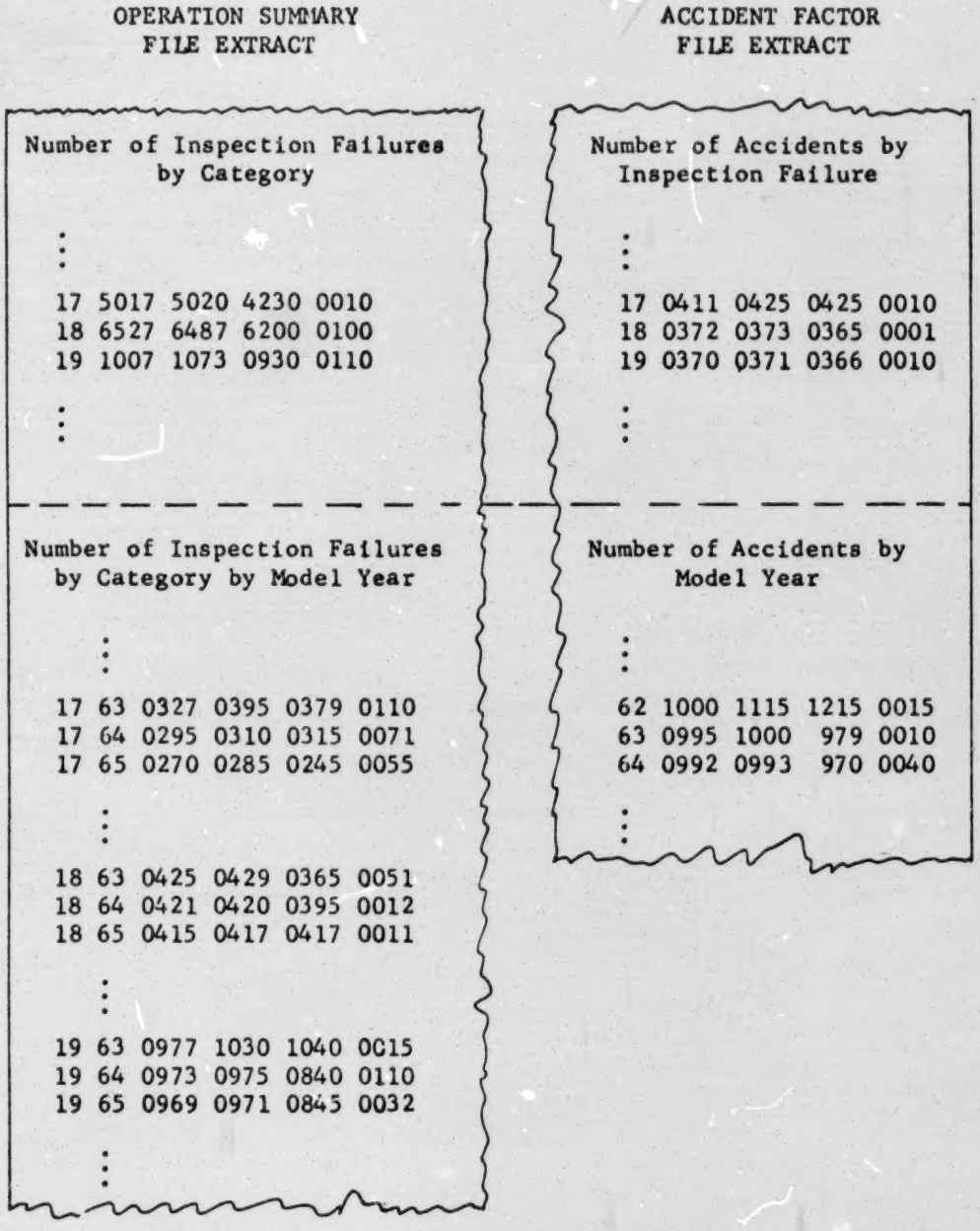
Class Problem No. 2 consists of three related questions. Please write your answers to the questions in the spaces provided on the last page of this form.

2.1 Question 1. It has been suggested that a special inspection program be implemented for vehicles over eight years old. What data elements in the Safety Program Management Subsystem would you examine to determine whether a detailed analysis of accident cases involving such vehicles with a history of inspection failures should be performed to provide input to a decision on this matter?

2.2 Question 2. Briefly, how would you employ these data elements in deciding whether to perform the detailed analysis?

2.3 Question 3. Assume that your inquiry has shown such an analysis to be merited. Figure 1 (attached) represents an abstract of the contents of the hypothetical Operational Summary and Accident Factors Files. Using the detailed data element code values for this subsystem, identify the type of vehicle defect you would expect to find indicated as a contributing factor in Fatal Accidents involving vehicles of this age or older if there is in fact a relationship between accidents and this type of inspection failure?

FIGURE 1:


OPERATION SUMMARY
FILE EXTRACT
ACCIDENT FACTOR
FILE EXTRACT
Number of Inspection Failures
by Category
17 5017 5020 4230 0010
18 6527 6487 6200 0100
19 1007 1073 0930 0110
Number of Accidents by
Inspection Failure
17 0411 0425 0425 0010
18 0372 0373 0365 0001
19 0370 0371 0366 0010
Number of Inspection Failures
by Category by Model Year
17 63 0327 0395 0379 0110
17 64 0295 0310 0315 0071
17 65 0270 0285 0245 0055
18 63 0425 0429 0365 0051
18 64 0421 0420 0395 0012
18 65 0415 0417 0417 0011
19 63 0977 1030 1040 0015
19 64 0973 0975 0840 0110
19 65 0969 0971 0845 0032
Number of Accidents by
Model Year
62 1000 1115 1215 0015
63 0995 1000 979 0010
64 0992 0993 970 0040

TRAFFIC RECORDS COURSE

ANSWERS TO CLASS PROBLEM NO. 2:

Question 1.

Question 2.

Question 3.

ANSWERS TO CLASS PROBLEM NO. 2

Question 1: The data elements you would examine would include:

- From the Operational Summary File, Vehicle Summary Data
  - #8.1.017 Number of Inspection Failures by Category
  - #8.1.018 Number of Inspection Failures by Category by Model Year
- From the Accident Factor File, Accidents vs. Vehicles Summary Data
  - #8.3.027 Number of Fatal Accidents by Model Year
  - #8.3.028 Number of Fatal Accidents by Inspection Failure

Question 2: Comparison of the first two data elements noted above would indicate whether, in any failure categories, vehicles over eight years old account for a significant portion of the failures in this category. If this is determined to be the case, the second two data elements would be examined. If the proportion of accidents in the failure categories previously noted and the proportion of accidents in the years of interest are both appreciable, then this would seem to be a good indication that the investigation is warranted.

Question 3: The answer is a steering assembly defect.

Examination of the data elements codes for the Number of Inspection Failures by Category and Inspection Failures by Category by Model Year indicates that the three failure categories will show some deterioration with age. However, the most marked deterioration is shown for the category coded by 17, which is steering assembly. An examination of the accident related data element code values would show marked increases in numbers of fatal accidents with vehicle age as well as in the number of accidents involving cars with a history of vehicle inspection failures for steering assembly problems.

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